

**High-Speed Train  
Network Alternatives Costs  
Summary**

	Stations Included	Segment km	Length miles	Average \$/km	Total Cost \$/mile	Segment Costs	Station Costs	TOTAL COSTS	
A	ALTAMONT PASS								
1	San Francisco and San Jose Termini	S2, S5, S6, S7, S12, S15, S21, S25, S27	327.24	203.34	\$38,880,394	\$62,571,929	\$10,972,862,793	\$1,750,428,628	\$12,723,291,421
2	Oakland and San Jose Termini	S3, S5, S9, S10, S15, S21, S25, S27	293.17	182.16	\$35,527,146	\$57,175,400	\$8,575,425,642	\$1,839,925,710	\$10,415,351,352
3	San Francisco, Oakland, and San Jose Termini	S2, S3, S5, S6, S7, S9, S10, S15, S21, S25, S27	388.12	241.16	\$39,782,765	\$64,024,155	\$12,717,546,470	\$2,722,781,285	\$15,440,327,755
4	San Jose Terminus	S5, S12, S15, S21, S25, S27	257.78	160.18	\$30,472,522	\$49,040,771	\$6,830,741,966	\$1,024,586,693	\$7,855,328,659
5	San Francisco Terminus	S2, S6, S7, S15, S21, S25, S27	308.27	191.55	\$35,514,873	\$57,155,648	\$9,295,774,550	\$1,652,537,408	\$10,948,311,957
6	Oakland Terminus	S3, S9, S10, S15, S21, S25, S27	274.97	170.86	\$29,700,584	\$47,798,456	\$6,898,337,399	\$1,268,432,060	\$8,166,769,459
7	Union City Terminus	S10, S15, S21, S25, S27	254.16	157.93	\$24,384,156	\$39,242,495	\$5,357,942,113	\$839,534,903	\$6,197,477,016
8	San Francisco, and San Jose - via SF Peninsula	S2, S5, S6, S7, S8, S15, S21, S25, S27	343.27	213.30	\$36,610,361	\$58,918,664	\$10,662,279,160	\$1,905,105,755	\$12,567,384,915
9	San Francisco, San Jose, and Oakland - with no San Francisco Bay Crossing	S2, S3, S5, S6, S7, S9, S10, S15, S21, S25, S27	393.81	244.70	\$36,713,165	\$59,084,112	\$12,121,598,757	\$2,336,339,425	\$14,457,938,182
10	Oakland, and San Francisco - via Transbay Tube	S2, S3, S9, S10, S15, S21, S25, S27	289.11	179.64	\$45,163,199	\$72,683,123	\$10,860,031,797	\$2,197,100,588	\$13,057,132,385
11	San Jose, Oakland and San Francisco - via Transbay Tube	S2, S3, S5, S9, S10, S15, S21, S25, S27	320.44	199.11	\$46,558,999	\$74,929,445	\$12,537,120,041	\$2,382,152,378	\$14,919,272,418
P	PACHECO PASS								
1	San Francisco and San Jose Termini	S2, S5, S6, S8, S23, S26, S27	430.55	267.53	\$28,771,881	\$46,303,853	\$11,028,569,783	\$1,359,019,515	\$12,387,589,298
2	Oakland and San Jose Termini	S3, S5, S9, S10, S23, S26, S27	413.40	256.87	\$27,973,967	\$45,019,736	\$10,345,348,109	\$1,218,949,918	\$11,564,298,026
3	San Francisco, Oakland and San Jose Termini	S2, S3, S5, S6, S8, S9, S10, S23, S26, S27	498.26	309.60	\$32,098,678	\$51,657,815	\$13,891,521,223	\$2,101,805,493	\$15,993,326,716
4	San Jose Terminus	S5, S23, S26, S27	343.04	213.15	\$23,200,433	\$37,337,478	\$7,482,396,668	\$476,163,940	\$7,958,560,608
5	San Jose, San Francisco and Oakland - via Transbay Tube	S2, S6, S7, S26, S27	444.69	276.31	\$36,016,452	\$57,962,861	\$14,990,264,181	\$1,025,711,680	\$16,015,975,861
6	San Jose, Oakland and San Francisco - via Transbay Tube	S2, S3, S5, S9, S10, S23, S26, S27	427.54	265.66	\$38,154,198	\$61,403,229	\$14,307,042,507	\$2,005,212,335	\$16,312,254,842
PA	PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)								
1	San Francisco and San Jose Termini	S2, S5, S6, S8, S23, S25, S27	545.83	339.16	\$32,351,814	\$52,065,199	\$16,299,474,324	\$1,359,019,515	\$17,658,493,839
2	Oakland and San Jose Termini	S3, S5, S9, S10, S23, S25, S27	512.50	318.45	\$30,435,986	\$48,981,972	\$14,379,523,442	\$1,218,949,918	\$15,598,473,359
3	San Francisco, Oakland and San Jose Termini (with Dumbarton Bridge)	S2, S3, S5, S6, S8, S9, S10, S23, S25, S27	629.32	391.04	\$34,942,461	\$56,234,439	\$19,888,148,879	\$2,101,805,493	\$21,989,954,371
4	San Francisco, Oakland and San Jose Termini (without Dumbarton Bridge)	S3, S5, S9, S10, S23, S25, S27	580.81	360.90	\$32,961,921	\$53,047,070	\$17,925,696,556	\$1,218,949,918	\$19,144,646,474
5	San Jose Terminus	S5, S23, S25, S27	460.34	286.04	\$28,118,750	\$45,252,742	\$12,467,937,131	\$476,163,940	\$12,944,101,071

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# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A1 - San Francisco and San Jose Termini</b>		<b>327.24</b>	<b>203.34</b>	<b>\$33,531,358</b>	<b>\$53,963,489</b>	<b>\$10,972,862,793</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>		<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191
Caltrain 2	4th/Townsend to Millbrae/SFO		28.61	17.78	\$35,793,741	\$57,604,443
Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453
<b>Dumbarton (High Bridge)</b>		<b>Subtotal</b>	<b>28.71</b>	<b>17.84</b>	<b>\$67,921,596</b>	<b>\$109,309,214</b>
Dumbarton-XN	Dumbarton Wye North to Caltrain		1.20	0.75	\$134,496,341	\$216,450,879
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		10.01	6.22	\$88,615,763	\$142,613,246
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		13.00	8.08	\$60,644,584	\$97,597,998
UPRR-1	Shinn to Niles Canyon		4.50	2.80	\$25,166,985	\$40,502,336
<b>Niles/I-880 (Niles Junction to San Jose via I-880)</b>		<b>Subtotal</b>	<b>22.45</b>	<b>13.95</b>	<b>\$49,012,551</b>	<b>\$78,878,055</b>
Niles/I-880 5B	Niles Wye (S) to Warm Springs		8.45	5.25	\$16,691,618	\$26,862,555
Niles/I-880 6	Warm Springs to Trimble Rd		2.35	1.46	\$212,457,836	\$341,917,743
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon		11.65	7.24	\$39,485,982	\$63,546,529
<b>East Bay Connection (Dumbarton/Niles XS)</b>		<b>Subtotal</b>	<b>8.88</b>	<b>5.52</b>	<b>\$64,964,684</b>	<b>\$104,550,525</b>
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)		8.88	5.52	\$64,964,684	\$104,550,525
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>39.77</b>	<b>24.71</b>	<b>\$42,257,804</b>	<b>\$68,007,343</b>
UPRR-2A/2B	Niles Canyon to Sunol		6.27	3.90	\$99,895,152	\$160,765,663
UPRR-3	Sunol to Pleasanton		3.30	2.05	\$44,840,606	\$72,163,960
UPRR-4	Pleasanton to El Charo		2.59	1.61	\$26,410,969	\$42,504,335
UPRR-5	El Charo to Livermore		6.61	4.10	\$7,127,268	\$11,470,225
UPRR-6	Livermore to Patterson Pass cut off		3.25	2.02	\$22,896,022	\$36,847,576
UPRR-7	Patterson Pass cut off to Greenville		2.98	1.85	\$18,326,922	\$29,494,322
UPRR-8	Greenville to Altamont Pass		11.27	7.00	\$53,967,010	\$86,851,484
UPRR-9	Altamont Pass to County Line		3.50	2.18	\$15,283,791	\$24,596,878
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>
UPRR-10	County Line to Tracy Downtown		12.35	7.67	\$24,741,185	\$39,817,078
UPRR-11	Tracy Downtown to I-205		7.40	4.60	\$15,859,194	\$25,522,899
UPRR-12	I-205 to S. UPRR		7.80	4.85	\$15,933,589	\$25,642,626
UPRR-13	I-205 to Lathrop - Northern		13.14	8.16	\$18,113,361	\$29,150,629
MC-1	Southwestern Manteca		1.46	0.91	\$27,687,372	\$44,558,506
MC-2	Southeastern Manteca		1.83	1.14	\$25,102,875	\$40,399,161
MC-4	Manteca to Escaton Wye		4.28	2.66	\$13,118,552	\$21,112,263
<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
UPRR N/S-1	French Camp to Lathrop		8.00	4.97	\$13,627,270	\$21,930,965
UPRR N/S-2	Lathrop through Manteca		8.70	5.41	\$21,359,159	\$34,374,234
UPRR N/S-3	Manteca South to BNSF/UPRR		3.30	2.05	\$7,761,402	\$12,490,765
UPRR N/S-4	BNSF/UPRR South to Modesto		18.50	11.50	\$15,559,246	\$25,040,179
UPRR N/S-5a *	UPRR Modesto South - Western Option		4.20	2.61	\$84,115,056	\$135,370,061
UPRR N/S-6	South Modesto to BNSF Connection		20.90	12.99	\$21,150,677	\$34,038,714
UPRR N/S-7	BNSF Connection South to Merced		33.25	20.66	\$16,572,019	\$26,670,079
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S1	4th & King (Caltrain)					\$791,939,278
S6	Millbrae/SFO					\$29,076,600
S7	Redwood City (Caltrain)					\$67,516,558
S11	Union City (Shinn)					\$310,150,400
S12	Fremont (Warm Springs)					\$156,875,180
S5	San Jose (Diridon)					\$185,051,790
S15	Pleasanton (I-680/Bernal Rd)					\$72,639,578
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A2 - Oakland and San Jose Termini</b>		<b>293.17</b>	<b>182.16</b>	<b>\$29,251,092</b>	<b>\$47,075,069</b>	<b>\$8,575,425,642</b>
<i>Niles/I-880 (West Oakland to Niles Junction)</i>						
	<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>	<b>\$1,595,717,028</b>
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	\$57,292,648	\$92,203,579	\$517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	\$58,026,798	\$93,385,080	\$217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	\$100,347,026	\$161,492,885	\$804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	\$2,359,136	\$3,796,662	\$55,321,742
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>						
	<b>Subtotal</b>	<b>22.45</b>	<b>13.95</b>	<b>\$49,012,551</b>	<b>\$78,878,055</b>	<b>\$1,100,331,777</b>
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	\$16,691,618	\$26,862,555	\$141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	\$212,457,836	\$341,917,743	\$499,275,914
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon	11.65	7.24	\$39,485,982	\$63,546,529	\$460,011,694
<i>East Bay Connection (Dumbarton/Niles XN &amp;)</i>						
	<b>Subtotal</b>	<b>4.25</b>	<b>2.64</b>	<b>\$170,597,817</b>	<b>\$274,550,573</b>	<b>\$725,723,114</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)	4.25	2.64	\$35,018,018	\$56,356,037	\$148,966,648
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)	8.88	5.52	\$64,964,684	\$104,550,525	\$576,756,466
<i>UPRR (Niles to Altamont)</i>						
	<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>	<b>\$1,680,501,168</b>
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	\$52,413,607	\$84,351,524	\$626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	\$134,433,359	\$216,349,520	\$147,876,695
UPRR-4	Pleasanton to El Charo	2.99	1.61	\$26,410,969	\$42,504,335	\$68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	\$7,127,268	\$11,470,225	\$47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	\$22,896,022	\$36,847,576	\$74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	\$18,326,922	\$29,494,322	\$54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	\$53,967,010	\$86,851,484	\$608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	\$15,283,791	\$24,596,878	\$53,508,554
<i>Tracy Downtown (UPRR Connection)</i>						
	<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>	<b>\$927,628,261</b>
UPRR-10	County Line to Tracy Downtown	12.35	7.67	\$24,741,185	\$39,817,078	\$305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	\$15,859,194	\$25,522,899	\$117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	\$15,933,589	\$25,642,626	\$124,281,993
UPRR-13	I-205 to Lathrop - Northern	13.14	8.16	\$18,113,361	\$29,150,629	\$238,009,562
MC-1	Southwestern Manteca	1.46	0.91	\$27,687,372	\$44,558,506	\$40,340,501
MC-2	Southeastern Manteca	1.83	1.14	\$25,102,875	\$40,399,161	\$45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	\$13,118,552	\$21,112,263	\$56,121,166
<i>UPRR (Central Valley)</i>						
	<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>	<b>\$2,545,524,294</b>
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	\$13,627,270	\$21,930,965	\$109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	\$21,359,159	\$34,374,234	\$185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	\$7,761,402	\$12,490,765	\$25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	\$15,559,246	\$25,040,179	\$287,846,051
UPRR N/S-5a *	UPRR Modesto South - Western Option	4.20	2.61	\$84,115,056	\$135,370,061	\$353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	\$21,150,677	\$34,038,714	\$442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	\$16,572,019	\$26,670,079	\$551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<b>STATION OPTIONS</b>						
S3	West Oakland/7th Street					\$786,262,418
S9	Coliseum/Airport					\$29,076,600
S10	Union City (BART)					\$69,853,070
S12	Fremont (Warm Springs)					\$69,853,070
S5	San Jose (Diridon)					\$185,051,790
S15	Pleasanton (I-680/Bernal Rd)					\$316,675,328
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

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<b>ALTAMONT PASS</b>						
<b>A3 - San Francisco, Oakland, and San Jose Termini</b>		<b>388.12</b>	<b>241.16</b>	<b>\$32,767,385</b>	<b>\$52,733,995</b>	<b>\$12,717,546,470</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>		<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191
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Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453
<b>Dumbarton (High Bridge)</b>		<b>Subtotal</b>	<b>28.71</b>	<b>17.84</b>	<b>\$67,921,596</b>	<b>\$109,309,214</b>
Dumbarton-XN	Dumbarton Wye North to Caltrain		1.20	0.75	\$134,496,341	\$216,450,879
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UPRR-1	Shinn to Niles Canyon		4.50	2.80	\$25,166,985	\$40,502,336
<b>Niles/I-880 (West Oakland to Niles Junction)</b>		<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>
Niles/I-880 1A	West Oakland to Jack London Square		9.04	5.62	\$57,292,648	\$92,203,579
Niles/I-880 2	Jack London Square to Oakland Coliseum		3.75	2.33	\$58,026,798	\$93,385,080
Niles/I-880 3A	Oakland Coliseum to Union City (BART)		8.02	4.98	\$100,347,026	\$161,492,885
Niles/I-880 4A	Union City (BART) to Niles Junction		23.45	14.57	\$2,359,136	\$3,796,662
<b>Niles/I-880 (Niles Junction to San Jose via I-880)</b>		<b>Subtotal</b>	<b>22.45</b>	<b>13.95</b>	<b>\$49,012,551</b>	<b>\$78,878,055</b>
Niles/I-880 5B	Niles Wye (S) to Warm Springs		8.45	5.25	\$16,691,618	\$26,862,555
Niles/I-880 6	Warm Springs to Trimble Rd		2.35	1.46	\$212,457,836	\$341,917,743
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon		11.65	7.24	\$39,485,982	\$63,546,529
<b>East Bay Connection (Dumbarton/Niles XN &amp;)</b>		<b>Subtotal</b>	<b>13.13</b>	<b>8.16</b>	<b>\$55,263,716</b>	<b>\$88,938,329</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)		4.25	2.64	\$35,018,018	\$56,356,037
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)		8.88	5.52	\$64,964,684	\$104,550,525
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>
UPRR-2A/2B	Niles Canyon to Sunol		11.95	7.43	\$52,413,607	\$84,351,524
UPRR-3	Sunol to Pleasanton		1.10	0.68	\$134,433,359	\$216,349,520
UPRR-4	Pleasanton to El Charo		2.59	1.61	\$26,410,969	\$42,504,335
UPRR-5	El Charo to Livermore		6.61	4.10	\$7,127,268	\$11,470,225
UPRR-6	Livermore to Patterson Pass cut off		3.25	2.02	\$22,896,022	\$36,847,576
UPRR-7	Patterson Pass cut off to Greenville		2.98	1.85	\$18,326,922	\$29,494,322
UPRR-8	Greenville to Altamont Pass		11.27	7.00	\$53,967,010	\$86,851,484
UPRR-9	Altamont Pass to County Line		3.50	2.18	\$15,283,791	\$24,596,878
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>
UPRR-10	County Line to Tracy Downtown		12.35	7.67	\$24,741,185	\$39,817,078
UPRR-11	Tracy Downtown to I-205		7.40	4.60	\$15,859,194	\$25,522,899
UPRR-12	I-205 to S. UPRR		7.80	4.85	\$15,933,589	\$25,642,626
UPRR-13	I-205 to Lathrop - Northern		13.14	8.16	\$18,113,361	\$29,150,629
MC-1	Southwestern Manteca		1.46	0.91	\$27,687,372	\$44,558,506
MC-2	Southeastern Manteca		1.83	1.14	\$25,102,875	\$40,399,161
MC-4	Manteca to Escaton Wye		4.28	2.66	\$13,118,552	\$21,112,263
<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
UPRR N/S-1	French Camp to Lathrop		8.00	4.97	\$13,627,270	\$21,930,965
UPRR N/S-2	Lathrop through Manteca		8.70	5.41	\$21,359,159	\$34,374,234
UPRR N/S-3	Manteca South to BNSF/UPRR		3.30	2.05	\$7,761,402	\$12,490,765
UPRR N/S-4	BNSF/UPRR South to Modesto		18.50	11.50	\$15,559,246	\$25,040,179
UPRR N/S-5a *	UPRR Modesto South - Western Option		4.20	2.61	\$84,115,056	\$135,370,061
UPRR N/S-6	South Modesto to BNSF Connection		20.90	12.99	\$21,150,677	\$34,038,714
UPRR N/S-7	BNSF Connection South to Merced		33.25	20.66	\$16,572,019	\$26,670,079
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S1	4th & King (Caltrain)					\$791,939,278
S6	Millbrae/SFO					\$29,076,600
S7	Redwood City (Caltrain)					\$67,516,558
S11	Union City (Shinn)					\$310,150,400
S3	West Oakland/7th Street					\$786,262,418
S9	Coliseum/Airport					\$29,076,600
S10	Union City (BART)					\$69,853,070
S12	Fremont (Warm Springs)					\$69,853,070
S5	San Jose (Diridon)					\$185,051,790
S15	Pleasanton (I-680/Bernal Rd)					\$316,675,328
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A4 - San Jose Terminus</b>		<b>257.78</b>	<b>160.18</b>	<b>\$26,497,928</b>	<b>\$42,644,282</b>	<b>\$6,830,741,966</b>
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>						
	<b>Subtotal</b>	<b>22.45</b>	<b>13.95</b>	<b>\$49,012,551</b>	<b>\$78,878,055</b>	<b>\$1,100,331,777</b>
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	\$16,691,618	\$26,862,555	\$141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	\$212,457,836	\$341,917,743	\$499,275,914
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon	11.65	7.24	\$39,485,982	\$63,546,529	\$460,011,694
<i>East Bay Connection (Dumbarton/Niles XS)</i>						
	<b>Subtotal</b>	<b>8.88</b>	<b>5.52</b>	<b>\$64,964,684</b>	<b>\$104,550,525</b>	<b>\$576,756,466</b>
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)	8.88	5.52	\$64,964,684	\$104,550,525	\$576,756,466
<i>UPRR (Niles to Altamont)</i>						
	<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>	<b>\$1,680,501,168</b>
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	\$52,413,607	\$84,351,524	\$626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	\$134,433,359	\$216,349,520	\$147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	\$26,410,969	\$42,504,335	\$68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	\$7,127,268	\$11,470,225	\$47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	\$22,896,022	\$36,847,576	\$74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	\$18,326,922	\$29,494,322	\$54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	\$53,967,010	\$86,851,484	\$608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	\$15,283,791	\$24,596,878	\$53,508,554
<i>Tracy Downtown (UPRR Connection)</i>						
	<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>	<b>\$927,628,261</b>
UPRR-10	County Line to Tracy Downtown	12.35	7.67	\$24,741,185	\$39,817,078	\$305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	\$15,859,194	\$25,522,899	\$117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	\$15,933,589	\$25,642,626	\$124,281,993
UPRR-13	I-205 to Lathrop - Northern	13.14	8.16	\$18,113,361	\$29,150,629	\$238,009,562
MC-1	Southwestern Manteca	1.46	0.91	\$27,687,372	\$44,558,506	\$40,340,501
MC-2	Southeastern Manteca	1.83	1.14	\$25,102,875	\$40,399,161	\$45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	\$13,118,552	\$21,112,263	\$56,121,166
<i>UPRR (Central Valley)</i>						
	<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>	<b>\$2,545,524,294</b>
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	\$13,627,270	\$21,930,965	\$109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	\$21,359,159	\$34,374,234	\$185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	\$7,761,402	\$12,490,765	\$25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	\$15,559,246	\$25,040,179	\$287,846,051
UPRR N/S-5a *	UPRR Modesto South - Western Option	4.20	2.61	\$84,115,056	\$135,370,061	\$353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	\$21,150,677	\$34,038,714	\$442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	\$16,572,019	\$26,670,079	\$551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<b>STATION OPTIONS</b>						
S12	Fremont (Warm Springs)					\$69,853,070
S5	San Jose (Diridon)					\$185,051,790
S15	Pleasanton (I-680/Bernal Rd)					\$316,675,328
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A5 - San Francisco Terminus</b>		<b>308.27</b>	<b>191.55</b>	<b>\$30,154,261</b>	<b>\$48,528,578</b>	<b>\$9,295,774,550</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>		<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191
Caltrain 2	4th/Townsend to Millbrae/SFO		28.61	17.78	\$35,793,741	\$57,604,443
Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453
<b>Dumbarton (High Bridge)</b>		<b>Subtotal</b>	<b>28.71</b>	<b>17.84</b>	<b>\$67,921,596</b>	<b>\$109,309,214</b>
Dumbarton-XN	Dumbarton Wye North to Caltrain		1.20	0.75	\$134,496,341	\$216,450,879
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		10.01	6.22	\$88,615,763	\$142,613,246
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		13.00	8.08	\$60,644,584	\$97,597,998
UPRR-1	Shinn to Niles Canyon		4.50	2.80	\$25,166,985	\$40,502,336
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>
UPRR-2A/2B	Niles Canyon to Sunol		11.95	7.43	\$52,413,607	\$84,351,524
UPRR-3	Sunol to Pleasanton		1.10	0.68	\$134,433,359	\$216,349,520
UPRR-4	Pleasanton to El Charo		2.59	1.61	\$26,410,969	\$42,504,335
UPRR-5	El Charo to Livermore		6.61	4.10	\$7,127,268	\$11,470,225
UPRR-6	Livermore to Patterson Pass cut off		3.25	2.02	\$22,896,022	\$36,847,576
UPRR-7	Patterson Pass cut off to Greenville		2.98	1.85	\$18,326,922	\$29,494,322
UPRR-8	Greenville to Altamont Pass		11.27	7.00	\$53,967,010	\$86,851,484
UPRR-9	Altamont Pass to County Line		3.50	2.18	\$15,283,791	\$24,596,878
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>
UPRR-10	County Line to Tracy Downtown		12.35	7.67	\$24,741,185	\$39,817,078
UPRR-11	Tracy Downtown to I-205		7.40	4.60	\$15,859,194	\$25,522,899
UPRR-12	I-205 to S. UPRR		7.80	4.85	\$15,833,589	\$25,642,626
UPRR-13	I-205 to Lathrop - Northern		13.14	8.16	\$18,113,361	\$29,150,629
MC-1	Southwestern Manteca		1.46	0.91	\$27,687,372	\$44,558,506
MC-2	Southeastern Manteca		1.83	1.14	\$25,102,875	\$40,399,161
MC-4	Manteca to Escaton Wye		4.28	2.66	\$13,118,552	\$21,112,263
<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
UPRR N/S-1	French Camp to Lathrop		8.00	4.97	\$13,627,270	\$21,930,965
UPRR N/S-2	Lathrop through Manteca		8.70	5.41	\$21,359,159	\$34,374,234
UPRR N/S-3	Manteca South to BNSF/UPRR		3.30	2.05	\$7,761,402	\$12,490,765
UPRR N/S-4	BNSF/UPRR South to Modesto		18.50	11.50	\$15,559,246	\$25,040,179
UPRR N/S-5a *	UPRR Modesto South - Western Option		4.20	2.61	\$84,115,056	\$135,370,061
UPRR N/S-6	South Modesto to BNSF Connection		20.90	12.99	\$21,150,677	\$34,038,714
UPRR N/S-7	BNSF Connection South to Merced		33.25	20.66	\$16,572,019	\$26,670,079
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S1	4th & King (Caltrain)					\$791,939,278
S6	Millbrae/SFO					\$29,076,600
S7	Redwood City (Caltrain)					\$67,516,558
S11	Union City (Shinn)					\$310,150,400
S15	Pleasanton (I-680/Bernal Rd)					\$316,675,328
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

**High-Speed Train  
Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A6 - Oakland Terminus</b>		<b>274.97</b>	<b>170.86</b>	<b>\$25,087,600</b>	<b>\$40,374,579</b>	<b>\$6,898,337,399</b>
<i>Niles/I-880 (West Oakland to Niles Junction)</i>						
	<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>	<b>\$1,595,717,028</b>
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	\$57,292,648	\$92,203,579	\$517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	\$58,026,798	\$93,385,080	\$217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	\$100,347,026	\$161,492,885	\$804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	\$2,359,136	\$3,796,662	\$55,321,742
<i>East Bay Connection (Dumbarton/Niles XN)</i>						
	<b>Subtotal</b>	<b>4.25</b>	<b>2.64</b>	<b>\$35,018,018</b>	<b>\$56,356,037</b>	<b>\$148,966,648</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)	4.25	2.64	\$35,018,018	\$56,356,037	\$148,966,648
<i>UPRR (Niles to Altamont)</i>						
	<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>	<b>\$1,680,501,168</b>
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	\$52,413,607	\$84,351,524	\$626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	\$134,433,359	\$216,349,520	\$147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	\$26,410,969	\$42,504,335	\$68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	\$7,127,268	\$11,470,225	\$47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	\$22,896,022	\$36,847,576	\$74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	\$18,326,922	\$29,494,322	\$54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	\$53,967,010	\$86,851,484	\$608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	\$15,283,791	\$24,596,878	\$53,508,554
<i>Tracy Downtown (UPRR Connection)</i>						
	<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>	<b>\$927,628,261</b>
UPRR-10	County Line to Tracy Downtown	12.35	7.67	\$24,741,185	\$39,817,078	\$305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	\$15,859,194	\$25,522,899	\$117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	\$15,933,589	\$25,642,626	\$124,281,993
UPRR-13	I-205 to Lathrop - Northern	13.14	8.16	\$18,113,361	\$29,150,629	\$238,009,562
MC-1	Southwestern Manteca	1.46	0.91	\$27,687,372	\$44,558,506	\$40,340,501
MC-2	Southeastern Manteca	1.83	1.14	\$25,102,875	\$40,399,161	\$45,963,364
MC-4	Manteca to Escalon Wye	4.28	2.66	\$13,118,552	\$21,112,263	\$56,121,166
<i>UPRR (Central Valley)</i>						
	<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>	<b>\$2,545,524,294</b>
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	\$13,627,270	\$21,930,965	\$109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	\$21,359,159	\$34,374,234	\$185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	\$7,761,402	\$12,490,765	\$25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	\$15,559,246	\$25,040,179	\$287,846,051
UPRR N/S-5a *	UPRR Modesto South - Western Option	4.20	2.61	\$84,115,056	\$135,370,061	\$353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	\$21,150,677	\$34,038,714	\$442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	\$16,572,019	\$26,670,079	\$551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<b>STATION OPTIONS</b>						
S3	West Oakland/7th Street					\$611,197,055
S9	Coliseum/Airport					\$61,735,853
S10	Union City (BART)					\$69,853,070
S15	Pleasanton (I-680/Bernal Rd)					\$72,639,578
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	miles	Avg Cost \$/km	\$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A7 - Union City Terminus</b>		<b>254.16</b>	<b>157.93</b>	<b>\$21,080,981</b>	<b>\$33,926,550</b>	<b>\$5,357,942,113</b>
<i>Niles/I-880 (Union City BART to Niles Junction)</i>		<b>Subtotal</b>	<b>23.45</b>	<b>14.57</b>	<b>\$2,359,136</b>	<b>\$3,796,662</b>
Niles/I-880 4A	Union City (BART) to Niles Junction		23.45	14.57	\$2,359,136	\$3,796,662
<i>East Bay Connection (Dumbarton/Niles XN)</i>		<b>Subtotal</b>	<b>4.25</b>	<b>2.64</b>	<b>\$35,018,018</b>	<b>\$56,356,037</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)		4.25	2.64	\$35,018,018	\$56,356,037
<i>UPRR (Niles to Altamont)</i>		<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>
UPRR-2A/2B	Niles Canyon to Sunol		11.95	7.43	\$52,413,607	\$84,351,524
UPRR-3	Sunol to Pleasanton		1.10	0.68	\$134,433,359	\$216,349,520
UPRR-4	Pleasanton to El Charo		2.59	1.61	\$26,410,969	\$42,504,335
UPRR-5	El Charo to Livermore		6.61	4.10	\$7,127,268	\$11,470,225
UPRR-6	Livermore to Patterson Pass cut off		3.25	2.02	\$22,896,022	\$36,847,576
UPRR-7	Patterson Pass cut off to Greenville		2.98	1.85	\$18,326,922	\$29,494,322
UPRR-8	Greenville to Altamont Pass		11.27	7.00	\$53,967,010	\$86,851,484
UPRR-9	Altamont Pass to County Line		3.50	2.18	\$15,283,791	\$24,596,878
<i>Tracy Downtown (UPRR Connection)</i>		<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>
UPRR-10	County Line to Tracy Downtown		12.35	7.67	\$24,741,185	\$39,817,078
UPRR-11	Tracy Downtown to I-205		7.40	4.60	\$15,859,194	\$25,522,899
UPRR-12	I-205 to S. UPRR		7.80	4.85	\$15,933,589	\$25,642,626
UPRR-13	I-205 to Lathrop - Northern		13.14	8.16	\$18,113,361	\$29,150,629
MC-1	Southwestern Manteca		1.46	0.91	\$27,687,372	\$44,558,506
MC-2	Southeastern Manteca		1.83	1.14	\$25,102,875	\$40,399,161
MC-4	Manteca to Escaton Wye		4.28	2.66	\$13,118,552	\$21,112,263
<i>UPRR (Central Valley)</i>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
UPRR N/S-1	French Camp to Lathrop		8.00	4.97	\$13,627,270	\$21,930,965
UPRR N/S-2	Lathrop through Manteca		8.70	5.41	\$21,359,159	\$34,374,234
UPRR N/S-3	Manteca South to BNSF/UPRR		3.30	2.05	\$7,761,402	\$12,490,765
UPRR N/S-4	BNSF/UPRR South to Modesto		18.50	11.50	\$15,559,246	\$25,040,179
UPRR N/S-5a *	UPRR Modesto South - Western Option		4.20	2.61	\$84,115,056	\$135,370,061
UPRR N/S-6	South Modesto to BNSF Connection		20.90	12.99	\$21,150,677	\$34,038,714
UPRR N/S-7	BNSF Connection South to Merced		33.25	20.66	\$16,572,019	\$26,670,079
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>STATION OPTIONS</b>						
S10	Union City (BART)					\$69,853,070
S15	Pleasanton (I-680/Bernal Rd)					\$316,675,328
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053



# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A8 - San Francisco, and San Jose - via SF Peninsula</b>		<b>343.27</b>	<b>213.30</b>	<b>\$31,060,550</b>	<b>\$49,987,109</b>	<b>\$10,662,279,160</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>		<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191
Caltrain 2	4th/Townsend to Millbrae/SFO		28.61	17.78	\$35,793,741	\$57,604,443
Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453
<b>Caltrain Corridor (Dumbarton to San Jose)</b>		<b>Subtotal</b>	<b>34.40</b>	<b>21.38</b>	<b>\$39,358,880</b>	<b>\$63,341,977</b>
Caltrain 5	Caltrain Dumbarton Wye		1.62	1.01	\$24,593,435	\$39,579,297
Caltrain 6	Dumbarton Wye to Palo Alto		5.23	3.25	\$49,783,239	\$80,118,357
Caltrain 7	Palo Alto to Santa Clara		22.55	14.01	\$26,212,143	\$42,184,355
Caltrain 8	Santa Clara to Diridon Station		5.00	3.11	\$92,535,828	\$148,921,979
<b>Dumbarton (High Bridge)</b>		<b>Subtotal</b>	<b>29.31</b>	<b>18.21</b>	<b>\$66,959,612</b>	<b>\$107,761,051</b>
Dumbarton-XN	Dumbarton Wye North to Caltrain		1.20	0.75	\$134,496,341	\$216,450,879
Dumbarton-XS	Dumbarton Wye South to Caltrain		0.60	0.37	\$20,931,892	\$33,686,615
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		10.01	6.22	\$88,615,763	\$142,613,246
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		13.00	8.08	\$60,644,584	\$97,597,998
UPRR-1	Shinn to Niles Canyon		4.50	2.80	\$25,166,985	\$40,502,336
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>
UPRR-2A/2B	Niles Canyon to Sunol		11.95	7.43	\$52,413,607	\$84,351,524
UPRR-3	Sunol to Pleasanton		1.10	0.68	\$134,433,359	\$216,349,520
UPRR-4	Pleasanton to El Charo		2.59	1.61	\$26,410,969	\$42,504,335
UPRR-5	El Charo to Livermore		6.61	4.10	\$7,127,268	\$11,470,225
UPRR-6	Livermore to Patterson Pass cut off		3.25	2.02	\$22,896,022	\$36,847,576
UPRR-7	Patterson Pass cut off to Greenville		2.98	1.85	\$18,326,922	\$29,494,322
UPRR-8	Greenville to Altamont Pass		11.27	7.00	\$53,967,010	\$86,851,484
UPRR-9	Altamont Pass to County Line		3.50	2.18	\$15,283,791	\$24,596,878
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>
UPRR-10	County Line to Tracy Downtown		12.35	7.67	\$24,741,185	\$39,817,078
UPRR-11	Tracy Downtown to I-205		7.40	4.60	\$15,859,194	\$25,522,899
UPRR-12	I-205 to S. UPRR		7.80	4.85	\$15,933,589	\$25,642,626
UPRR-13	I-205 to Lathrop - Northern		13.14	8.16	\$18,113,361	\$29,150,629
MC-1	Southwestern Manteca		1.46	0.91	\$27,687,372	\$44,558,506
MC-2	Southeastern Manteca		1.83	1.14	\$25,102,875	\$40,399,161
MC-4	Manteca to Escaton Wye		4.28	2.66	\$13,118,552	\$21,112,263
<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
UPRR N/S-1	French Camp to Lathrop		8.00	4.97	\$13,627,270	\$21,930,965
UPRR N/S-2	Lathrop through Manteca		8.70	5.41	\$21,359,159	\$34,374,234
UPRR N/S-3	Manteca South to BNSF/UPRR		3.30	2.05	\$7,761,402	\$12,490,765
UPRR N/S-4	BNSF/UPRR South to Modesto		18.50	11.50	\$15,559,246	\$25,040,179
UPRR N/S-5a *	UPRR Modesto South - Western Option		4.20	2.61	\$84,115,056	\$135,370,061
UPRR N/S-6	South Modesto to BNSF Connection		20.90	12.99	\$21,150,677	\$34,038,714
UPRR N/S-7	BNSF Connection South to Merced		33.25	20.66	\$16,572,019	\$26,670,079
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S1	4th & King (Caltrain)					\$791,939,278
S6	Millbrae/SFO					\$29,076,600
S7	Redwood City (Caltrain)					\$67,516,558
S8	Palo Alto (Caltrain)					\$67,516,558
S5	San Jose (Diridon)					\$185,051,790
S11	Union City (Shinn)					\$310,150,400
S15	Pleasanton (I-680/Bernal Rd)					\$316,675,328
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A9 - San Francisco, San Jose, and Oakland - with no San Francisco Bay Crossing</b>		<b>393.81</b>	<b>244.70</b>	<b>\$30,780,479</b>	<b>\$49,536,379</b>	<b>\$12,121,598,757</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>		<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191
Caltrain 2	4th/Townsend to Millbrae/SFO		28.61	17.78	\$35,793,741	\$57,604,443
Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453
<b>Caltrain Corridor (Dumbarton to San Jose)</b>		<b>Subtotal</b>	<b>34.40</b>	<b>21.38</b>	<b>\$39,358,880</b>	<b>\$63,341,977</b>
Caltrain 5	Caltrain Dumbarton Wye		1.62	1.01	\$24,593,435	\$39,579,297
Caltrain 6	Dumbarton Wye to Palo Alto		5.23	3.25	\$49,783,239	\$80,118,357
Caltrain 7	Palo Alto to Santa Clara		22.55	14.01	\$26,212,143	\$42,184,355
Caltrain 8	Santa Clara to Diridon Station		5.00	3.11	\$92,535,828	\$148,921,979
<b>Niles/I-880 (West Oakland to Niles Junction)</b>		<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>
Niles/I-880 1A	West Oakland to Jack London Square		9.04	5.62	\$57,292,648	\$92,203,579
Niles/I-880 2	Jack London Square to Oakland Coliseum		3.75	2.33	\$58,026,798	\$93,385,080
Niles/I-880 3A	Oakland Coliseum to Union City (BART)		8.02	4.98	\$100,347,026	\$161,492,885
Niles/I-880 4A	Union City (BART) to Niles Junction		23.45	14.57	\$2,359,136	\$3,796,662
<b>Niles/I-880 (Niles Junction to San Jose via I-880)</b>		<b>Subtotal</b>	<b>22.45</b>	<b>13.95</b>	<b>\$49,012,551</b>	<b>\$78,878,055</b>
Niles/I-880 5B	Niles Wye (S) to Warm Springs		8.45	5.25	\$16,691,618	\$26,862,555
Niles/I-880 6	Warm Springs to Trimble Rd		2.35	1.46	\$212,457,836	\$341,917,743
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon		11.65	7.24	\$39,485,982	\$63,546,529
<b>East Bay Connection (Dumbarton/Niles XN &amp; Dumbarton/Niles XN)</b>		<b>Subtotal</b>	<b>13.13</b>	<b>8.16</b>	<b>\$55,263,716</b>	<b>\$88,938,329</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)		4.25	2.64	\$35,018,018	\$56,356,037
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)		8.88	5.52	\$64,964,684	\$104,550,525
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>
UPRR-2A/2B	Niles Canyon to Sunol		11.95	7.43	\$52,413,607	\$84,351,524
UPRR-3	Sunol to Pleasanton		1.10	0.68	\$134,433,359	\$216,349,520
UPRR-4	Pleasanton to El Charo		2.59	1.61	\$26,410,969	\$42,504,335
UPRR-5	El Charo to Livermore		6.61	4.10	\$7,127,268	\$11,470,225
UPRR-6	Livermore to Patterson Pass cut off		3.25	2.02	\$22,896,022	\$36,847,576
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UPRR-9	Altamont Pass to County Line		3.50	2.18	\$15,283,791	\$24,596,878
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>
UPRR-10	County Line to Tracy Downtown		12.35	7.67	\$24,741,185	\$39,817,078
UPRR-11	Tracy Downtown to I-205		7.40	4.60	\$15,859,194	\$25,522,899
UPRR-12	I-205 to S. UPRR		7.80	4.85	\$15,933,589	\$25,642,626
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<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
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UPRR N/S-5a *	UPRR Modesto South - Western Option		4.20	2.61	\$84,115,056	\$135,370,061
UPRR N/S-6	South Modesto to BNSF Connection		20.90	12.99	\$21,150,677	\$34,038,714
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UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S1	4th and King (Caltrain)					\$791,939,278
S6	Millbrae/SFO					\$29,076,600
S7	Redwood City (Caltrain)					\$67,516,558
S8	Palo Alto (Caltrain)					\$67,516,558
S3	West Oakland/7th Street					\$611,197,055
S9	Coliseum/Airport					\$61,735,853
S10	Union City (BART)					\$69,853,070
S12	Fremont (Warm Springs)					\$156,875,180
S5	San Jose (Diridon)					\$185,051,790
S15	Pleasanton (I-680/Bernal Rd)					\$72,639,578
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>						
<b>A10 - Oakland and San Francisco - via Transbay Tube</b>		<b>289.11</b>	<b>179.64</b>	<b>\$37,563,667</b>	<b>\$60,452,862</b>	<b>\$10,860,031,797</b>
<b>Transbay Crossing - Transbay Transit Center</b>		<b>Subtotal</b>	<b>14.14</b>	<b>8.79</b>	<b>\$280,176,407</b>	<b>\$450,900,220</b>
TB-1	Transbay Transit Center tube to SF Bay	4.33	2.69	\$144,822,423	\$233,069,097	\$627,081,091
TB-3	SF Bay to West Oakland	9.81	6.10	\$339,819,807	\$547,047,902	\$3,334,613,307
<b>Niles/I-880 (West Oakland to Niles Junction)</b>		<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	\$57,292,648	\$92,203,579	\$517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	\$58,026,798	\$93,385,080	\$217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	\$100,347,026	\$161,492,885	\$804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	\$2,359,136	\$3,796,662	\$55,321,742
<b>East Bay Connection (Dumbarton/Niles XN)</b>		<b>Subtotal</b>	<b>4.25</b>	<b>2.64</b>	<b>\$35,018,018</b>	<b>\$56,356,037</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)	4.25	2.64	\$35,018,018	\$56,356,037	\$148,966,648
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	\$52,413,607	\$84,351,524	\$626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	\$134,433,359	\$216,349,520	\$147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	\$26,410,969	\$42,504,335	\$68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	\$7,127,268	\$11,470,225	\$47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	\$22,896,022	\$36,847,576	\$74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	\$18,326,922	\$29,494,322	\$54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	\$53,967,010	\$86,851,484	\$608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	\$15,283,791	\$24,596,878	\$53,508,554
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>48.26</b>	<b>29.98</b>	<b>\$19,223,066</b>	<b>\$30,936,526</b>
UPRR-10	County Line to Tracy Downtown	12.35	7.67	\$24,741,185	\$39,817,078	\$305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	\$15,859,194	\$25,522,899	\$117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	\$15,833,589	\$25,642,626	\$124,281,993
UPRR-13	I-205 to Lathrop - Northern	13.14	8.16	\$18,113,361	\$29,150,629	\$238,009,562
MC-1	Southwestern Manteca	1.46	0.91	\$27,687,372	\$44,558,506	\$40,340,501
MC-2	Southeastern Manteca	1.83	1.14	\$25,102,875	\$40,399,161	\$45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	\$13,118,552	\$21,112,263	\$56,121,166
<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	\$13,627,270	\$21,930,965	\$109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	\$21,359,159	\$34,374,234	\$185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	\$7,761,402	\$12,490,765	\$25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	\$15,559,246	\$25,040,179	\$287,846,051
UPRR N/S-5a *	UPRR Modesto South - Western Option	4.20	2.61	\$84,115,056	\$135,370,061	\$353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	\$21,150,677	\$34,038,714	\$442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	\$16,572,019	\$26,670,079	\$551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S3	West Oakland/7th Street					\$786,262,418
S9	Coliseum/Airport					\$29,076,600
S10	Union City (BART)					\$69,853,070
S15	Pleasanton (I-680/Bernal Rd)					\$72,639,578
S17	Livermore (Downtown) (At Grade)					\$73,297,263
S18	Livermore (Downtown) (Aerial)					\$314,667,658
S20	Livermore (Greenville/UPRR)					\$72,639,578
S21	Tracy (Downtown)					\$310,150,400
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km miles	Avg Cost \$/km \$/mile	Segment/Station Costs
<b>ALTAMONT PASS</b>				
<b>A11 - San Jose, Oakland and San Francisco - via Transbay Tube</b>		<b>320.44</b>	<b>199.11</b>	<b>\$39,124,948 \$62,965,500 \$12,537,120,041</b>
<b>Transbay Crossing - Transbay Transit Center</b>		<b>Subtotal</b>	<b>14.14 8.79</b>	<b>\$280,176,407 \$450,900,220 \$3,961,694,398</b>
TB-1	Transbay Transit Center tube to SF Bay	4.33	2.69	\$144,822,423 \$233,069,097 \$627,081,091
TB-3	SF Bay to West Oakland	9.81	6.10	\$339,819,807 \$547,047,902 \$3,334,613,307
<b>Niles/I-880 (West Oakland to Niles Junction)</b>		<b>Subtotal</b>	<b>44.26 27.50</b>	<b>\$36,053,254 \$58,022,088 \$1,595,717,028</b>
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	\$57,292,648 \$92,203,579 \$517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	\$58,026,798 \$93,385,080 \$217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	\$100,347,026 \$161,492,885 \$804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	\$2,359,136 \$3,796,662 \$55,321,742
<b>Niles/I-880 (Niles Junction to San Jose via I-880)</b>		<b>Subtotal</b>	<b>22.45 13.95</b>	<b>\$49,012,551 \$78,878,055 \$1,100,331,777</b>
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	\$16,691,618 \$26,862,555 \$141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	\$212,457,836 \$341,917,743 \$499,275,914
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon	11.65	7.24	\$39,485,982 \$63,546,529 \$460,011,694
<b>East Bay Connection (Dumbarton/Niles XN &amp; Dumbarton/Niles XS)</b>		<b>Subtotal</b>	<b>13.13 8.16</b>	<b>\$55,263,716 \$88,938,329 \$725,723,114</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)	4.25	2.64	\$35,018,018 \$56,356,037 \$148,966,648
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)	8.88	5.52	\$64,964,684 \$104,550,525 \$576,756,466
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>43.25 26.87</b>	<b>\$38,855,518 \$62,531,895 \$1,680,501,168</b>
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	\$52,413,607 \$84,351,524 \$626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	\$134,433,359 \$216,349,520 \$147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	\$26,410,969 \$42,504,335 \$68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	\$7,127,268 \$11,470,225 \$74,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	\$22,896,022 \$36,847,576 \$74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	\$18,326,922 \$29,494,322 \$54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	\$53,967,010 \$86,851,484 \$608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	\$15,283,791 \$24,596,878 \$53,508,554
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>48.26 29.98</b>	<b>\$19,223,066 \$30,936,526 \$927,628,261</b>
UPRR-10	County Line to Tracy Downtown	12.35	7.67	\$24,741,185 \$39,817,078 \$305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	\$15,859,194 \$25,522,899 \$117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	\$15,933,589 \$25,642,626 \$124,281,993
UPRR-13	I-205 to Lathrop - Northern	13.14	8.16	\$18,113,361 \$29,150,629 \$238,009,562
MC-1	Southwestern Manteca	1.46	0.91	\$27,687,372 \$44,558,506 \$40,340,501
MC-2	Southeastern Manteca	1.83	1.14	\$25,102,875 \$40,399,161 \$45,963,364
MC-4	Manteca to Escaton Wye	4.28	2.66	\$13,118,552 \$21,112,263 \$56,121,166
<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95 83.85</b>	<b>\$18,862,722 \$30,356,608 \$2,545,524,294</b>
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	\$13,627,270 \$21,930,965 \$109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	\$21,359,159 \$34,374,234 \$185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	\$7,761,402 \$12,490,765 \$25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	\$15,559,246 \$25,040,179 \$287,846,051
UPRR N/S-5a *	UPRR Modesto South - Western Option	4.20	2.61	\$84,115,056 \$135,370,061 \$353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	\$21,150,677 \$34,038,714 \$442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	\$16,572,019 \$26,670,079 \$551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740 \$51,760,913 \$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037 \$13,978,822 \$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529 \$29,001,230 \$286,526,405
<b>STATION OPTIONS</b>				
S2	Transbay Transit Center			\$786,262,418
S3	West Oakland/7th Street			\$786,262,418
S9	Coliseum/Airport			\$29,076,600
S10	Union City (BART)			\$69,853,070
S12	Fremont (Warm Springs)			\$69,853,070
S5	San Jose (Diridon)			\$185,051,790
S15	Pleasanton (I-680/Bernal Rd)			\$72,639,578
S17	Livermore (Downtown) (At Grade)			\$73,297,263
S18	Livermore (Downtown) (Aerial)			\$314,667,658
S20	Livermore (Greenville/UPRR)			\$72,639,578
S21	Tracy (Downtown)			\$310,150,400
S25	Modesto (Downtown)			\$71,428,053
S27	Merced (Downtown)			\$71,428,053

# High-Speed Train Network Alternatives Cost Breakdown

Network Alternatives and Segments		Segment km	Length miles	Avg Cost \$/km	\$/mile	Segment/Station Costs	
PACHECO PASS							
P1 - San Francisco and San Jose Termini		430.55	267.53	\$25,615,371	\$41,223,943	\$11,028,569,783	
Caltrain Corridor (San Francisco to Dumbarton)		Subtotal	53.11	33.00	\$41,277,116	\$66,429,079	\$2,192,227,640
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191	\$398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO		28.61	17.78	\$35,793,741	\$57,604,443	\$1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640	\$702,929,734
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453	\$66,433,025
Caltrain Corridor (Dumbarton to San Jose)		Subtotal	34.40	21.38	\$39,358,880	\$63,341,977	\$1,353,945,475
Caltrain 5	Caltrain Dumbarton Wye		1.62	1.01	\$24,593,435	\$39,579,297	\$39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto		5.23	3.25	\$49,783,239	\$80,118,357	\$260,316,558
Caltrain 7	Palo Alto to Santa Clara		22.55	14.01	\$26,212,143	\$42,184,355	\$591,083,820
Caltrain 8	Santa Clara to Diridon Station		5.00	3.11	\$92,535,828	\$148,921,979	\$462,679,139
Pacheco (San Jose to Western Valley)		Subtotal	92.50	57.48	\$38,800,727	\$62,443,717	\$3,589,067,255
Pacheco 1	Diridon to Morgan Hill		32.50	20.19	\$20,366,713	\$32,777,047	\$661,918,165
Pacheco 2	Morgan Hill to Gilroy		16.00	9.94	\$23,730,117	\$38,189,921	\$379,681,864
Pacheco 3	Gilroy to San Luis Reservoir		44.00	27.34	\$57,896,982	\$93,176,161	\$2,547,467,226
Henry Miller (UPRR Connection)		Subtotal	100.89	62.69	\$13,489,349	\$21,709,003	\$1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor		15.45	9.60	\$27,554,846	\$44,345,226	\$425,722,369
HM-1	Western Valley to Henry Miller UP Wye		58.05	36.07	\$10,870,134	\$17,493,785	\$630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye		8.19	5.09	\$11,200,428	\$18,025,342	\$91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR		11.25	6.99	\$11,845,555	\$19,063,573	\$133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR		7.95	4.94	\$9,962,265	\$16,032,711	\$79,200,005
BNSF - UPRR		Subtotal	149.65	92.99	\$16,922,529	\$27,234,170	\$2,532,456,455
BNSF N/S 1	North Stockton South to UPRR Connection		17.50	10.87	\$8,299,538	\$13,356,812	\$145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks		3.50	2.17	\$8,146,586	\$13,110,659	\$28,513,051
BNSF N/S 3	Parallel tracks South through Escaton		13.55	8.42	\$18,310,198	\$29,467,407	\$248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore		13.85	8.61	\$22,595,951	\$36,364,659	\$233,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection		39.85	24.76	\$17,070,256	\$27,471,913	\$680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater		6.30	3.91	\$17,380,925	\$27,971,887	\$109,499,827
BNSF N/S 7	Atwater to Downtown Merced		17.00	10.56	\$24,530,829	\$39,478,543	\$417,024,095
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
STATION OPTIONS							
	S2	Transbay Transit Center					\$786,262,418
	S1	4th and King (Caltrain)					\$791,939,278
	S6	Millbrae/SFO					\$29,076,600
	S7	Redwood City (Caltrain)					\$67,516,558
	S8	Palo Alto (Caltrain)					\$67,516,558
	S5	San Jose (Diridon)					\$185,051,790
	S24	Morgan Hill (Caltrain)					\$284,985,295
	S23	Gilroy (Caltrain)					\$148,256,045
	S26	Briggsmore (Amtrak)					\$71,428,053
	S27	Merced (Downtown)					\$71,428,053
PACHECO PASS							
P2 - Oakland and San Jose Termini		413.40	256.87	\$25,025,334	\$40,274,372	\$10,345,348,109	
Niles/I-880 (West Oakland to Niles Junction)		Subtotal	44.26	27.50	\$36,053,254	\$58,022,088	\$1,595,717,028
Niles/I-880 1A	West Oakland to Jack London Square		9.04	5.62	\$57,292,648	\$92,203,579	\$517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum		3.75	2.33	\$58,026,798	\$93,385,080	\$217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)		8.02	4.98	\$100,347,026	\$161,492,885	\$804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction		23.45	14.57	\$2,359,136	\$3,796,662	\$55,321,742
Niles/I-880 (Niles Junction to San Jose via I-880)		Subtotal	26.10	16.22	\$48,553,043	\$78,138,548	\$1,267,234,412
Niles/I-880 5A	Niles Junction to Niles Wye (S)		3.65	2.27	\$45,726,749	\$73,590,069	\$166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs		8.45	5.25	\$16,691,618	\$26,862,555	\$141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd		2.35	1.46	\$212,457,836	\$341,917,743	\$499,275,914
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon		11.65	7.24	\$39,485,982	\$63,546,529	\$460,011,694
Pacheco (San Jose to Western Valley)		Subtotal	92.50	57.48	\$38,800,727	\$62,443,717	\$3,589,067,255
Pacheco 1	Diridon to Morgan Hill		32.50	20.19	\$20,366,713	\$32,777,047	\$661,918,165
Pacheco 2	Morgan Hill to Gilroy		16.00	9.94	\$23,730,117	\$38,189,921	\$379,681,864
Pacheco 3	Gilroy to San Luis Reservoir		44.00	27.34	\$57,896,982	\$93,176,161	\$2,547,467,226
Henry Miller (UPRR Connection)		Subtotal	100.89	62.69	\$13,489,349	\$21,709,003	\$1,360,872,958
Pacheco 4	San Luis Reservoir to Valley Floor		15.45	9.60	\$27,554,846	\$44,345,226	\$425,722,369
HM-1	Western Valley to Henry Miller UP Wye		58.05	36.07	\$10,870,134	\$17,493,785	\$630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye		8.19	5.09	\$11,200,428	\$18,025,342	\$91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR		11.25	6.99	\$11,845,555	\$19,063,573	\$133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR		7.95	4.94	\$9,962,265	\$16,032,711	\$79,200,005
BNSF - UPRR		Subtotal	149.65	92.99	\$16,922,529	\$27,234,170	\$2,532,456,455
BNSF N/S 1	North Stockton South to UPRR Connection		17.50	10.87	\$8,299,538	\$13,356,812	\$145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks		3.50	2.17	\$8,146,586	\$13,110,659	\$28,513,051
BNSF N/S 3	Parallel tracks South through Escaton		13.55	8.42	\$18,310,198	\$29,467,407	\$248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore		13.85	8.61	\$22,595,951	\$36,364,659	\$233,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection		39.85	24.76	\$17,070,256	\$27,471,913	\$680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater		6.30	3.91	\$17,380,925	\$27,971,887	\$109,499,827
BNSF N/S 7	Atwater to Downtown Merced		17.00	10.56	\$24,530,829	\$39,478,543	\$417,024,095
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
STATION OPTIONS							
	S3	West Oakland/7th Street					\$611,197,055
	S9	Coliseum/Airport					\$61,735,853
	S10	Union City (BART)					\$69,853,070
	S12	Fremont (Warm Springs)					\$156,875,180
	S5	San Jose (Diridon)					\$185,051,790
	S24	Morgan Hill (Caltrain)					\$284,985,295
	S23	Gilroy (Caltrain)					\$148,256,045
	S26	Briggsmore (Amtrak)					\$71,428,053
	S27	Merced (Downtown)					\$71,428,053

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# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>PACHECO PASS</b>						
<b>P3 - San Francisco, Oakland and San Jose Termini</b>		<b>498.26</b>	<b>309.60</b>	<b>\$27,880,345</b>	<b>\$44,869,066</b>	<b>\$13,891,521,223</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>		<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191
Caltrain 2	4th/Townsend to Millbrae/SFO		28.61	17.78	\$35,793,741	\$57,604,443
Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453
<b>Caltrain Corridor (Dumbarton to San Jose)</b>		<b>Subtotal</b>	<b>34.40</b>	<b>21.38</b>	<b>\$39,358,880</b>	<b>\$63,341,977</b>
Caltrain 5	Caltrain Dumbarton Wye		1.62	1.01	\$24,593,435	\$39,579,297
Caltrain 6	Dumbarton Wye to Palo Alto		5.23	3.25	\$49,783,239	\$80,118,357
Caltrain 7	Palo Alto to Santa Clara		22.55	14.01	\$26,212,143	\$42,184,355
Caltrain 8	Santa Clara to Diridon Station		5.00	3.11	\$92,535,828	\$148,921,979
<b>Niles/I-880 (West Oakland to Niles Junction)</b>		<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>
Niles/I-880 1A	West Oakland to Jack London Square		9.04	5.62	\$57,292,648	\$92,203,579
Niles/I-880 2	Jack London Square to Oakland Coliseum		3.75	2.33	\$58,026,798	\$93,385,080
Niles/I-880 3A	Oakland Coliseum to Union City (BART)		8.02	4.98	\$100,347,026	\$161,492,885
Niles/I-880 4A	Union City (BART) to Niles Junction		23.45	14.57	\$2,359,136	\$3,796,662
<b>Niles/I-880 (Niles Junction to San Jose via I-880)</b>		<b>Subtotal</b>	<b>26.10</b>	<b>16.22</b>	<b>\$48,553,043</b>	<b>\$78,138,548</b>
Niles/I-880 5A	Niles Junction to Niles Wye (S)		3.65	2.27	\$45,726,749	\$73,590,069
Niles/I-880 5B	Niles Wye (S) to Warm Springs		8.45	5.25	\$16,691,618	\$26,862,555
Niles/I-880 6	Warm Springs to Trimble Rd		2.35	1.46	\$212,457,836	\$341,917,743
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon		11.65	7.24	\$39,485,982	\$63,546,529
<b>Pacheco (San Jose to Western Valley)</b>		<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>
Pacheco 1	Diridon to Morgan Hill		32.50	20.19	\$20,366,713	\$32,777,047
Pacheco 2	Morgan Hill to Gilroy		16.00	9.94	\$23,730,117	\$38,189,921
Pacheco 3	Gilroy to San Luis Reservoir		44.00	27.34	\$57,896,982	\$93,176,161
<b>Henry Miller (UPRR Connection)</b>		<b>Subtotal</b>	<b>100.89</b>	<b>62.69</b>	<b>\$13,489,349</b>	<b>\$21,709,003</b>
Pacheco 4	San Luis Reservoir to Valley Floor		15.45	9.60	\$27,554,846	\$44,345,226
HM-1	Western Valley to Henry Miller UP Wye		58.05	36.07	\$10,870,134	\$17,493,785
HM-2	Henry Miller UP North Wye to UP South Wye		8.19	5.09	\$11,200,428	\$18,025,342
HM/UP-XN	Henry Miller Wye North to UPRR		11.25	6.99	\$11,845,555	\$19,063,573
HM/UP-XS	Henry Miller Wye South to UPRR		7.95	4.94	\$9,962,265	\$16,032,711
<b>BNSF - UPRR</b>		<b>Subtotal</b>	<b>149.65</b>	<b>92.99</b>	<b>\$16,922,529</b>	<b>\$27,234,170</b>
BNSF N/S 1	North Stockton South to UPRR Connection		17.50	10.87	\$8,299,538	\$13,356,812
BNSF N/S 2	BNSF Parallel to UPRR tracks		3.50	2.17	\$8,146,586	\$13,110,659
BNSF N/S 3	Parallel tracks South through Escaton		13.55	8.42	\$18,310,198	\$29,467,407
BNSF N/S 4	Escaton South to Amtrak Briggsmore		13.85	8.61	\$22,595,951	\$36,364,659
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection		39.85	24.76	\$17,070,256	\$27,471,913
BNSF N/S 6	UPRR/BNSF Connection to Atwater		6.30	3.91	\$17,380,925	\$27,971,887
BNSF N/S 7	Atwater to Downtown Merced		17.00	10.56	\$24,530,829	\$39,478,543
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S1	4th and King (Caltrain)					\$791,939,278
S6	Millbrae/SFO					\$29,076,600
S7	Redwood City (Caltrain)					\$67,516,558
S8	Palo Alto (Caltrain)					\$67,516,558
S3	West Oakland/7th Street					\$611,197,055
S9	Coliseum/Airport					\$61,735,853
S10	Union City (BART)					\$69,853,070
S12	Fremont (Warm Springs)					\$156,875,180
S5	San Jose (Diridon)					\$185,051,790
S24	Morgan Hill (Caltrain)					\$284,985,295
S23	Gilroy (Caltrain)					\$148,256,045
S26	Briggsmore (Amtrak)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment km	Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>PACHECO PASS</b>						
<b>P4 - San Jose Terminus</b>		<b>343.04</b>	<b>213.15</b>	<b>\$21,812,342</b>	<b>\$35,103,561</b>	<b>\$7,482,396,668</b>
<b>Pacheco (San Jose to Western Valley)</b>						
	<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>	<b>\$3,589,067,255</b>
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	\$20,366,713	\$32,777,047	\$661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	\$23,730,117	\$38,189,921	\$379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	\$57,896,982	\$93,176,161	\$2,547,467,226
<b>Henry Miller (UPRR Connection)</b>						
	<b>Subtotal</b>	<b>100.89</b>	<b>62.69</b>	<b>\$13,489,349</b>	<b>\$21,709,003</b>	<b>\$1,360,872,958</b>
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	\$27,554,846	\$44,345,226	\$425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	\$10,870,134	\$17,493,785	\$630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	\$11,200,428	\$18,025,342	\$91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	\$11,845,555	\$19,063,573	\$133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	\$9,962,265	\$16,032,711	\$79,200,005
<b>BNSF - UPRR</b>						
	<b>Subtotal</b>	<b>149.65</b>	<b>92.99</b>	<b>\$16,922,529</b>	<b>\$27,234,170</b>	<b>\$2,532,456,455</b>
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	\$8,299,538	\$13,356,812	\$145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	\$8,146,586	\$13,110,659	\$28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	\$18,310,198	\$29,467,407	\$248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore	13.85	8.61	\$22,595,951	\$36,364,659	\$312,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection	39.85	24.76	\$17,070,256	\$27,471,913	\$680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	\$17,380,925	\$27,971,887	\$109,499,827
BNSF N/S 7	Atwater to Downtown Merced	17.00	10.56	\$24,530,829	\$39,478,543	\$417,024,095
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<b>STATION OPTIONS</b>						
	S5 San Jose (Diridon)					\$185,051,790
	S24 Morgan Hill (Caltrain)					\$284,985,295
	S23 Gilroy (Caltrain)					\$148,256,045
	S26 Briggsmore (Amtrak)					\$71,428,053
	S27 Merced (Downtown)					\$71,428,053
<b>PACHECO PASS</b>						
<b>P5 - San Jose, San Francisco and Oakland - via Transbay Tube</b>		<b>444.69</b>	<b>276.31</b>	<b>\$33,709,849</b>	<b>\$54,250,743</b>	<b>\$14,990,264,181</b>
<b>Transbay Crossing - Transbay Transit Center</b>						
	<b>Subtotal</b>	<b>14.14</b>	<b>8.79</b>	<b>\$280,176,407</b>	<b>\$450,900,220</b>	<b>\$3,961,694,398</b>
TB-1	Transbay Transit Center tube to SF Bay	4.33	2.69	\$144,822,423	\$233,069,097	\$627,081,091
TB-3	SF Bay to West Oakland	9.81	6.10	\$339,919,807	\$547,047,902	\$3,334,613,307
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>						
	<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>	<b>\$2,192,227,640</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	\$79,761,189	\$128,363,191	\$398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	\$35,793,741	\$57,604,443	\$1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	\$37,489,586	\$60,333,640	\$702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	\$88,577,366	\$142,551,453	\$66,433,025
<b>Caltrain Corridor (Dumbarton to San Jose)</b>						
	<b>Subtotal</b>	<b>34.40</b>	<b>21.38</b>	<b>\$39,358,880</b>	<b>\$63,341,977</b>	<b>\$1,353,945,475</b>
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	\$24,593,435	\$39,579,297	\$39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	\$49,783,239	\$80,118,357	\$260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	\$26,212,143	\$42,184,355	\$591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	\$92,535,828	\$148,921,979	\$462,679,139
<b>Pacheco (San Jose to Western Valley)</b>						
	<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>	<b>\$3,589,067,255</b>
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	\$20,366,713	\$32,777,047	\$661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	\$23,730,117	\$38,189,921	\$379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	\$57,896,982	\$93,176,161	\$2,547,467,226
<b>Henry Miller (UPRR Connection)</b>						
	<b>Subtotal</b>	<b>100.89</b>	<b>62.69</b>	<b>\$13,489,349</b>	<b>\$21,709,003</b>	<b>\$1,360,872,958</b>
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	\$27,554,846	\$44,345,226	\$425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	\$10,870,134	\$17,493,785	\$630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	\$11,200,428	\$18,025,342	\$91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	\$11,845,555	\$19,063,573	\$133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	\$9,962,265	\$16,032,711	\$79,200,005
<b>BNSF - UPRR</b>						
	<b>Subtotal</b>	<b>149.65</b>	<b>92.99</b>	<b>\$16,922,529</b>	<b>\$27,234,170</b>	<b>\$2,532,456,455</b>
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	\$8,299,538	\$13,356,812	\$145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	\$8,146,586	\$13,110,659	\$28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	\$18,310,198	\$29,467,407	\$248,103,178
BNSF N/S 4	Escaton South to Amtrak Briggsmore	13.85	8.61	\$22,595,951	\$36,364,659	\$312,953,926
BNSF N/S 5	Amtrak Briggsmore to UPRR/BNSF Connection	39.85	24.76	\$17,070,256	\$27,471,913	\$680,249,686
BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	\$17,380,925	\$27,971,887	\$109,499,827
BNSF N/S 7	Atwater to Downtown Merced	17.00	10.56	\$24,530,829	\$39,478,543	\$417,024,095
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<b>STATION OPTIONS</b>						
	S2 Transbay Transit Center					\$786,262,418
	S1 4th and King (Caltrain)					\$791,939,278
	S6 Millbrae/SFO					\$29,076,600
	S7 Redwood City (Caltrain)					\$67,516,558
	S8 Palo Alto (Caltrain)					\$67,516,558
	S5 San Jose (Diridon)					\$185,051,790
	S24 Morgan Hill (Caltrain)					\$284,985,295
	S23 Gilroy (Caltrain)					\$148,256,045
	S26 Briggsmore (Amtrak)					\$71,428,053
	S27 Merced (Downtown)					\$71,428,053

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	miles	Avg Cost \$/km	\$/mile	Segment/Station Costs
<b>PACHECO PASS</b>						
<b>P6 - San Jose, Oakland and San Francisco - via Transbay Tube</b>		<b>427.54</b>	<b>265.66</b>	<b>\$33,464,026</b>	<b>\$53,855,130</b>	<b>\$14,307,042,507</b>
<b>Transbay Crossing - Transbay Transit Center</b>		<b>Subtotal</b>	<b>14.14</b>	<b>8.79</b>	<b>\$280,176,407</b>	<b>\$450,900,220</b>
TB-1	Transbay Transit Center tube to SF Bay	4.33	2.69	\$144,822,423	\$233,069,097	\$627,081,091
TB-3	SF Bay to West Oakland	9.81	6.10	\$339,919,807	\$547,047,902	\$3,334,613,307
<b>Niles/I-880 (West Oakland to Niles Junction)</b>		<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	\$57,292,648	\$92,203,579	\$517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	\$58,026,798	\$93,385,080	\$217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	\$100,347,026	\$161,492,885	\$804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	\$2,359,136	\$3,796,662	\$55,321,742
<b>Niles/I-880 (Niles Junction to San Jose via I-880)</b>		<b>Subtotal</b>	<b>26.10</b>	<b>16.22</b>	<b>\$48,553,043</b>	<b>\$78,138,548</b>
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	\$45,726,749	\$73,590,069	\$166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	\$16,691,618	\$26,862,555	\$141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	\$212,457,836	\$341,917,743	\$499,275,914
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon	11.65	7.24	\$39,485,982	\$63,546,529	\$460,011,694
<b>Pacheco (San Jose to Western Valley)</b>		<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	\$20,366,713	\$32,777,047	\$661,918,165
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<b>Henry Miller (UPRR Connection)</b>		<b>Subtotal</b>	<b>100.89</b>	<b>62.69</b>	<b>\$13,489,349</b>	<b>\$21,709,003</b>
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HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	\$9,962,265	\$16,032,711	\$79,200,005
<b>BNSF - UPRR</b>		<b>Subtotal</b>	<b>149.65</b>	<b>92.99</b>	<b>\$16,922,529</b>	<b>\$27,234,170</b>
BNSF N/S 1	North Stockton South to UPRR Connection	17.50	10.87	\$8,299,538	\$13,356,812	\$145,241,919
BNSF N/S 2	BNSF Parallel to UPRR tracks	3.50	2.17	\$8,146,586	\$13,110,659	\$28,513,051
BNSF N/S 3	Parallel tracks South through Escaton	13.55	8.42	\$18,310,198	\$29,467,407	\$248,103,178
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BNSF N/S 6	UPRR/BNSF Connection to Atwater	6.30	3.91	\$17,380,925	\$27,971,887	\$109,499,827
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UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<b>STATION OPTIONS</b>						
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S3	West Oakland/7th Street					\$611,197,055
S9	Coliseum/Airport					\$61,735,853
S10	Union City (BART)					\$69,853,070
S12	Fremont (Warm Springs)					\$156,875,180
S5	San Jose (Diridon)					\$185,051,790
S24	Morgan Hill (Caltrain)					\$284,985,295
S23	Gilroy (Caltrain)					\$148,256,045
S26	Briggsmore (Amtrak)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053



# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)</b>						
<b>AP1 - San Francisco and San Jose Termini</b>		<b>545.83</b>	<b>339.16</b>	<b>\$29,861,979</b>	<b>\$48,058,196</b>	<b>\$16,299,474,324</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>		<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191
Caltrain 2	4th/Townsend to Millbrae/SFO		28.61	17.78	\$35,793,741	\$57,604,443
Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453
<b>Caltrain Corridor (Dumbarton to San Jose)</b>		<b>Subtotal</b>	<b>34.40</b>	<b>21.38</b>	<b>\$39,358,880</b>	<b>\$63,341,977</b>
Caltrain 5	Caltrain Dumbarton Wye		1.62	1.01	\$24,593,435	\$39,579,297
Caltrain 6	Dumbarton Wye to Palo Alto		5.23	3.25	\$49,783,239	\$80,118,357
Caltrain 7	Palo Alto to Santa Clara		22.55	14.01	\$26,212,143	\$42,184,355
Caltrain 8	Santa Clara to Diridon Station		5.00	3.11	\$92,535,828	\$148,921,979
<b>Dumbarton (High Bridge)</b>		<b>Subtotal</b>	<b>29.31</b>	<b>18.21</b>	<b>\$66,959,612</b>	<b>\$107,761,051</b>
Dumbarton-XN	Dumbarton Wye North to Caltrain		1.20	0.75	\$134,496,341	\$216,450,879
Dumbarton-XS	Dumbarton Wye South to Caltrain		0.60	0.37	\$20,931,892	\$33,686,615
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		10.01	6.22	\$88,615,763	\$142,613,246
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		13.00	8.08	\$60,644,584	\$97,597,998
UPRR-1	Shinn to Niles Canyon		4.50	2.80	\$25,166,985	\$40,502,336
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>
UPRR-2A/2B	Niles Canyon to Sunol		11.95	7.43	\$52,413,607	\$84,351,524
UPRR-3	Sunol to Pleasanton		1.10	0.68	\$134,433,359	\$216,349,520
UPRR-4	Pleasanton to El Charo		2.59	1.61	\$26,410,969	\$42,504,335
UPRR-5	El Charo to Livermore		6.61	4.10	\$7,127,268	\$11,470,225
UPRR-6	Livermore to Patterson Pass cut off		3.25	2.02	\$22,896,022	\$36,847,576
UPRR-7	Patterson Pass cut off to Greenville		2.98	1.85	\$18,326,922	\$29,494,322
UPRR-8	Greenville to Altamont Pass		11.27	7.00	\$53,967,010	\$86,851,484
UPRR-9	Altamont Pass to County Line		3.50	2.18	\$15,283,791	\$24,596,878
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>57.42</b>	<b>35.68</b>	<b>\$28,122,096</b>	<b>\$45,258,126</b>
UPRR-10	County Line to Tracy Downtown		12.35	7.67	\$24,741,185	\$39,817,078
UPRR-11	Tracy Downtown to I-205		7.40	4.60	\$15,859,194	\$25,522,899
UPRR-12	I-205 to S. UPRR		7.80	4.85	\$15,933,589	\$25,642,626
UPRR-13	I-205 to Lathrop - Northern		13.14	8.16	\$18,113,361	\$29,150,629
MC-1	Southwestern Manteca		1.46	0.91	\$27,687,372	\$44,558,506
MC-2	Southeastern Manteca		1.83	1.14	\$25,102,875	\$40,399,161
MC-3	Eastern Manteca UPRR South to BNSF		9.17	5.70	\$74,962,364	\$120,640,230
MC-4	Manteca to Escaton Wye		4.28	2.66	\$13,118,552	\$21,112,263
<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
UPRR N/S-1	French Camp to Lathrop		8.00	4.97	\$13,627,270	\$21,930,965
UPRR N/S-2	Lathrop through Manteca		8.70	5.41	\$21,359,159	\$34,374,234
UPRR N/S-3	Manteca South to BNSF/UPRR		3.30	2.05	\$7,761,402	\$12,490,765
UPRR N/S-4	BNSF/UPRR South to Modesto		18.50	11.50	\$15,559,246	\$25,040,179
UPRR N/S-5a *	UPRR Modesto South - Western Option		4.20	2.61	\$84,115,056	\$135,370,061
UPRR N/S-6	South Modesto to BNSF Connection		20.90	12.99	\$21,150,677	\$34,038,714
UPRR N/S-7	BNSF Connection South to Merced		33.25	20.66	\$16,572,019	\$26,670,079
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>Pacheco (San Jose to Western Valley)</b>		<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>
Pacheco 1	Diridon to Morgan Hill		32.50	20.19	\$20,366,713	\$32,777,047
Pacheco 2	Morgan Hill to Gilroy		16.00	9.94	\$23,730,117	\$38,189,921
Pacheco 3	Gilroy to San Luis Reservoir		44.00	27.34	\$57,896,982	\$93,176,161
<b>Henry Miller (UPRR Connection)</b>		<b>Subtotal</b>	<b>100.89</b>	<b>62.69</b>	<b>\$13,489,349</b>	<b>\$21,709,003</b>
Pacheco 4	San Luis Reservoir to Valley Floor		15.45	9.60	\$27,554,846	\$44,345,226
HM-1	Western Valley to Henry Miller UP Wye		58.05	36.07	\$10,870,134	\$17,493,785
HM-2	Henry Miller UP North Wye to UP South Wye		8.19	5.09	\$11,200,428	\$18,025,342
HM/UP-XN	Henry Miller Wye North to UPRR		11.25	6.99	\$11,845,555	\$19,063,573
HM/UP-XS	Henry Miller Wye South to UPRR		7.95	4.94	\$9,962,265	\$16,032,711
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S1	4th and King (Caltrain)					\$791,939,278
S6	Millbrae/SFO					\$29,076,600
S7	Redwood City (Caltrain)					\$67,516,558
S8	Palo Alto (Caltrain)					\$67,516,558
S29	Union City (Shinn)					\$300,146,665
S32	Pleasanton (I-680/Bernal Rd)					\$58,118,585
S34	Livermore (Downtown) (At Grade)					\$58,758,963
S35	Livermore (Downtown) (Aerial)					\$300,146,665
S37	Livermore (Greenville Road/UPRR)					\$58,118,585
S38	Tracy (Downtown)					\$300,146,665
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053
S5	San Jose (Diridon)					\$185,051,790
S24	Morgan Hill (Caltrain)					\$284,985,295
S23	Gilroy (Caltrain)					\$148,256,045

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	miles	Avg Cost \$/km	\$/mile	Segment/Station Costs
<b>PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)</b>						
<b>AP2 - Oakland and San Jose Termini</b>		<b>512.50</b>	<b>318.45</b>	<b>\$28,057,552</b>	<b>\$45,154,253</b>	<b>\$14,379,523,442</b>
<i>Niles/I-880 (West Oakland to Niles Junction)</i>						
	<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>	<b>\$1,595,717,028</b>
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	\$57,292,648	\$92,203,579	\$517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	\$58,026,798	\$93,385,080	\$217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	\$100,347,026	\$161,492,885	\$804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	\$2,359,136	\$3,796,662	\$55,321,742
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>						
	<b>Subtotal</b>	<b>26.10</b>	<b>16.22</b>	<b>\$48,553,043</b>	<b>\$78,138,548</b>	<b>\$1,267,234,412</b>
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	\$45,726,749	\$73,590,069	\$166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	\$16,691,618	\$26,862,555	\$141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	\$212,457,836	\$341,917,743	\$499,275,914
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon	11.65	7.24	\$39,485,982	\$63,546,529	\$460,011,694
<i>East Bay Connection (Dumbarton/Niles XN &amp; Dumbarton/Niles XS)</i>						
	<b>Subtotal</b>	<b>13.13</b>	<b>8.16</b>	<b>\$55,263,716</b>	<b>\$88,938,329</b>	<b>\$725,723,114</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)	4.25	2.64	\$35,018,018	\$56,356,037	\$148,966,648
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)	8.88	5.52	\$64,964,684	\$104,550,525	\$576,756,466
<i>UPRR (Niles to Altamont)</i>						
	<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>	<b>\$1,680,501,168</b>
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	\$52,413,607	\$84,351,524	\$626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	\$134,433,359	\$216,349,520	\$147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	\$26,410,969	\$42,504,335	\$68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	\$7,127,268	\$11,470,225	\$47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	\$22,896,022	\$36,847,576	\$74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	\$18,326,922	\$29,494,322	\$54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	\$53,967,010	\$86,851,484	\$608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	\$15,283,791	\$24,596,878	\$53,508,554
<i>Tracy Downtown (UPRR Connection)</i>						
	<b>Subtotal</b>	<b>57.42</b>	<b>35.68</b>	<b>\$28,122,096</b>	<b>\$45,258,126</b>	<b>\$1,614,883,212</b>
UPRR-10	County Line to Tracy Downtown	12.35	7.67	\$24,741,185	\$39,817,078	\$305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	\$15,859,194	\$25,522,899	\$117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	\$15,933,589	\$25,642,626	\$124,281,993
UPRR-13	I-205 to Lathrop - Northern	13.14	8.16	\$18,113,361	\$29,150,629	\$238,009,562
MC-1	Southwestern Manteca	1.46	0.91	\$27,687,372	\$44,558,506	\$40,340,501
MC-2	Southeastern Manteca	1.83	1.14	\$25,102,875	\$40,399,161	\$45,963,364
MC-3	Eastern Manteca UPRR South to BNSF	9.17	5.70	\$74,962,364	\$120,640,230	\$687,254,951
MC-4	Manteca to Escaton Wye	4.28	2.66	\$13,118,552	\$21,112,263	\$56,121,166
<i>UPRR (Central Valley)</i>						
	<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>	<b>\$2,545,524,294</b>
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	\$13,627,270	\$21,930,965	\$109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	\$21,359,159	\$34,374,234	\$185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	\$7,761,402	\$12,490,765	\$25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	\$15,559,246	\$25,040,179	\$287,846,051
UPRR N/S-5a *	UPRR Modesto South - Western Option	4.20	2.61	\$84,115,056	\$135,370,061	\$353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	\$21,150,677	\$34,038,714	\$442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	\$16,572,019	\$26,670,079	\$551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<i>Pacheco (San Jose to Western Valley)</i>						
	<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>	<b>\$3,589,067,255</b>
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	\$20,366,713	\$32,777,047	\$661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	\$23,730,117	\$38,189,921	\$379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	\$57,896,982	\$93,176,161	\$2,547,467,226
<i>Henry Miller (UPRR Connection)</i>						
	<b>Subtotal</b>	<b>100.89</b>	<b>62.69</b>	<b>\$13,489,349</b>	<b>\$21,709,003</b>	<b>\$1,360,872,958</b>
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	\$27,554,846	\$44,345,226	\$425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	\$10,870,134	\$17,493,785	\$630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	\$11,200,428	\$18,025,342	\$91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	\$11,845,555	\$19,063,573	\$133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	\$9,962,265	\$16,032,711	\$79,200,005
<b>STATION OPTIONS</b>						
	S3	West Oakland/7th Street				\$611,197,055
	S9	Coliseum/Airport				\$61,735,853
	S10	Union City (BART)				\$69,853,070
	S12	Fremont (Warm Springs)				\$156,875,180
	S32	Pleasanton (I-680/Bernal Rd)				\$58,118,585
	S34	Livermore (Downtown) (At Grade)				\$58,758,963
	S35	Livermore (Downtown) (Aerial)				\$300,146,665
	S37	Livermore (Greenville Road/UPRR)				\$58,118,585
	S38	Tracy (Downtown)				\$300,146,665
	S25	Modesto (Downtown)				\$71,428,053
	S27	Merced (Downtown)				\$71,428,053
	S5	San Jose (Diridon)				\$185,051,790
	S24	Morgan Hill (Caltrain)				\$284,985,295
	S23	Gilroy (Caltrain)				\$148,256,045

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment km	Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)</b>						
<b>AP3 - San Francisco, Oakland and San Jose Termini (with Dumbarton Bridge)</b>		<b>629.32</b>	<b>391.04</b>	<b>\$31,602,651</b>	<b>\$50,859,537</b>	<b>\$19,888,148,879</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>		<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend		5.00	3.11	\$79,761,189	\$128,363,191
Caltrain 2	4th/Townsend to Millbrae/SFO		28.61	17.78	\$35,793,741	\$57,604,443
Caltrain 3	Millbrae/SFO to Redwood City		18.75	11.65	\$37,489,586	\$60,333,640
Caltrain 4	Redwood City to Caltrain		0.75	0.47	\$88,577,366	\$142,551,453
<b>Caltrain Corridor (Dumbarton to San Jose)</b>		<b>Subtotal</b>	<b>34.40</b>	<b>21.38</b>	<b>\$39,358,880</b>	<b>\$63,341,977</b>
Caltrain 5	Caltrain Dumbarton Wye		1.62	1.01	\$24,593,435	\$39,579,297
Caltrain 6	Dumbarton Wye to Palo Alto		5.23	3.25	\$49,783,239	\$80,118,357
Caltrain 7	Palo Alto to Santa Clara		22.55	14.01	\$26,212,143	\$42,184,355
Caltrain 8	Santa Clara to Diridon Station		5.00	3.11	\$92,535,828	\$148,921,979
<b>Dumbarton (High Bridge)</b>		<b>Subtotal</b>	<b>29.31</b>	<b>18.21</b>	<b>\$66,959,612</b>	<b>\$107,761,051</b>
Dumbarton-XN	Dumbarton Wye North to Caltrain		1.20	0.75	\$134,496,341	\$216,450,879
Dumbarton-XS	Dumbarton Wye South to Caltrain		0.60	0.37	\$20,931,892	\$33,686,615
Dumbarton-1 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		10.01	6.22	\$88,615,763	\$142,613,246
Dumbarton-2 (High Bridge)	Dumbarton Bay Crossing to Don Edwards		13.00	8.08	\$60,644,584	\$97,597,998
UPRR-1	Shinn to Niles Canyon		4.50	2.80	\$25,166,985	\$40,502,336
<b>Niles/I-880 (West Oakland to Niles Junction)</b>		<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>
Niles/I-880 1A	West Oakland to Jack London Square		9.04	5.62	\$57,292,648	\$92,203,579
Niles/I-880 2	Jack London Square to Oakland Coliseum		3.75	2.33	\$58,026,798	\$93,385,080
Niles/I-880 3A	Oakland Coliseum to Union City (BART)		8.02	4.98	\$100,347,026	\$161,492,885
Niles/I-880 4A	Union City (BART) to Niles Junction		23.45	14.57	\$2,359,136	\$3,796,662
<b>Niles/I-880 (Niles Junction to San Jose via I-880)</b>		<b>Subtotal</b>	<b>26.10</b>	<b>16.22</b>	<b>\$48,553,043</b>	<b>\$78,138,548</b>
Niles/I-880 5A	Niles Junction to Niles Wye (S)		3.65	2.27	\$45,726,749	\$73,590,069
Niles/I-880 5B	Niles Wye (S) to Warm Springs		8.45	5.25	\$16,691,618	\$26,862,555
Niles/I-880 6	Warm Springs to Trimble Rd		2.35	1.46	\$212,457,836	\$341,917,743
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon		11.65	7.24	\$39,485,982	\$63,546,529
<b>East Bay Connection (Dumbarton/Niles XN &amp; Niles to Fremont)</b>		<b>Subtotal</b>	<b>13.13</b>	<b>8.16</b>	<b>\$55,263,716</b>	<b>\$88,938,329</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)		4.25	2.64	\$35,018,018	\$56,356,037
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)		8.88	5.52	\$64,964,684	\$104,550,525
<b>UPRR (Niles to Altamont)</b>		<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>
UPRR-2A/2B	Niles Canyon to Sunol		11.95	7.43	\$52,413,607	\$84,351,524
UPRR-3	Sunol to Pleasanton		1.10	0.68	\$134,433,359	\$216,349,520
UPRR-4	Pleasanton to El Charo		2.59	1.61	\$26,410,969	\$42,504,335
UPRR-5	El Charo to Livermore		6.61	4.10	\$7,127,268	\$11,470,225
UPRR-6	Livermore to Patterson Pass cut off		3.25	2.02	\$22,896,022	\$36,847,576
UPRR-7	Patterson Pass cut off to Greenville		2.98	1.85	\$18,326,922	\$29,494,322
UPRR-8	Greenville to Altamont Pass		11.27	7.00	\$53,967,010	\$86,851,484
UPRR-9	Altamont Pass to County Line		3.50	2.18	\$15,283,791	\$24,596,878
<b>Tracy Downtown (UPRR Connection)</b>		<b>Subtotal</b>	<b>57.42</b>	<b>35.68</b>	<b>\$28,122,096</b>	<b>\$45,258,126</b>
UPRR-10	County Line to Tracy Downtown		12.35	7.67	\$24,741,185	\$39,817,078
UPRR-11	Tracy Downtown to I-205		7.40	4.60	\$15,859,194	\$25,522,899
UPRR-12	I-205 to S. UPRR		7.80	4.85	\$15,933,589	\$25,642,626
UPRR-13	I-205 to Lathrop - Northern		13.14	8.16	\$18,113,361	\$29,150,629
MC-1	Southwestern Manteca		1.46	0.91	\$27,687,372	\$44,558,506
MC-2	Southeastern Manteca		1.83	1.14	\$25,102,875	\$40,399,161
MC-3	Eastern Manteca UPRR South to BNSF		9.17	5.70	\$74,962,364	\$120,640,230
MC-4	Manteca to Escaton Wye		4.28	2.66	\$13,118,552	\$21,112,263
<b>UPRR (Central Valley)</b>		<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>
UPRR N/S-1	French Camp to Lathrop		8.00	4.97	\$13,627,270	\$21,930,965
UPRR N/S-2	Lathrop through Manteca		8.70	5.41	\$21,359,159	\$34,374,234
UPRR N/S-3	Manteca South to BNSF/UPRR		3.30	2.05	\$7,761,402	\$12,490,765
UPRR N/S-4	BNSF/UPRR South to Modesto		18.50	11.50	\$15,559,246	\$25,040,179
UPRR N/S-5a *	UPRR Modesto South - Western Option		4.20	2.61	\$84,115,056	\$135,370,061
UPRR N/S-6	South Modesto to BNSF Connection		20.90	12.99	\$21,150,677	\$34,038,714
UPRR N/S-7	BNSF Connection South to Merced		33.25	20.66	\$16,572,019	\$26,670,079
UPRR N/S-8	Merced South to BNSF Connection		4.75	2.95	\$32,162,740	\$51,760,913
UPRR N/S-9	BNSF Connection South to Henry Miller Wye		17.45	10.84	\$8,686,037	\$13,978,822
UPRR N/S-10	BNSF Henry Miller Wye		15.90	9.88	\$18,020,529	\$29,001,230
<b>Pacheco (San Jose to Western Valley)</b>		<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>
Pacheco 1	Diridon to Morgan Hill		32.50	20.19	\$20,366,713	\$32,777,047
Pacheco 2	Morgan Hill to Gilroy		16.00	9.94	\$23,730,117	\$38,189,921
Pacheco 3	Gilroy to San Luis Reservoir		44.00	27.34	\$57,896,982	\$93,176,161
<b>Henry Miller (UPRR Connection)</b>		<b>Subtotal</b>	<b>100.89</b>	<b>62.69</b>	<b>\$13,489,349</b>	<b>\$21,709,003</b>
Pacheco 4	San Luis Reservoir to Valley Floor		15.45	9.60	\$27,554,846	\$44,345,226
HM-1	Western Valley to Henry Miller UP Wye		58.05	36.07	\$10,870,134	\$17,493,785
HM-2	Henry Miller UP North Wye to UP South Wye		8.19	5.09	\$11,200,428	\$18,025,342
HM/UP-XN	Henry Miller Wye North to UPRR		11.25	6.99	\$11,845,555	\$19,063,573
HM/UP-XS	Henry Miller Wye South to UPRR		7.95	4.94	\$9,962,265	\$16,032,711
<b>STATION OPTIONS</b>						
S2	Transbay Transit Center					\$786,262,418
S1	4th and King (Caltrain)					\$791,939,278
S6	Millbrae/SFO					\$29,076,600
S7	Redwood City (Caltrain)					\$67,516,558
S8	Palo Alto (Caltrain)					\$67,516,558
S29	Union City (Shinn)					\$300,146,665
S3	West Oakland/7th Street					\$611,197,055
S9	Coliseum/Airport					\$61,735,853
S10	Union City (BART)					\$69,853,070
S12	Fremont (Warm Springs)					\$156,875,180
S32	Pleasanton (I-680/Bernal Rd)					\$58,118,585
S34	Livermore (Downtown) (At Grade)					\$58,758,963
S35	Livermore (Downtown) (Aerial)					\$300,146,665
S37	Livermore (Greenville Road/UPRR)					\$58,118,585
S38	Tracy (Downtown)					\$300,146,665
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053
S5	San Jose (Diridon)					\$185,051,790
S24	Morgan Hill (Caltrain)					\$284,985,295
S23	Gilroy (Caltrain)					\$148,256,045

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# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment Length km	Segment Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)</b>						
<b>AP4 - San Francisco, Oakland and San Jose Termini (without Dumbarton Bridge)</b>		<b>580.81</b>	<b>360.90</b>	<b>\$30,863,218</b>	<b>\$49,669,535</b>	<b>\$17,925,696,556</b>
<b>Caltrain Corridor (San Francisco to Dumbarton)</b>						
	<b>Subtotal</b>	<b>53.11</b>	<b>33.00</b>	<b>\$41,277,116</b>	<b>\$66,429,079</b>	<b>\$2,192,227,640</b>
Caltrain 1	Transbay Transit Center to 4th/Townsend	5.00	3.11	\$79,761,189	\$128,363,191	\$398,805,944
Caltrain 2	4th/Townsend to Millbrae/SFO	28.61	17.78	\$35,793,741	\$57,604,443	\$1,024,058,938
Caltrain 3	Millbrae/SFO to Redwood City	18.75	11.65	\$37,489,586	\$60,333,640	\$702,929,734
Caltrain 4	Redwood City to Caltrain	0.75	0.47	\$88,577,366	\$142,551,453	\$66,433,025
<b>Caltrain Corridor (Dumbarton to San Jose)</b>						
	<b>Subtotal</b>	<b>34.40</b>	<b>21.38</b>	<b>\$39,358,880</b>	<b>\$63,341,977</b>	<b>\$1,353,945,475</b>
Caltrain 5	Caltrain Dumbarton Wye	1.62	1.01	\$24,593,435	\$39,579,297	\$39,865,958
Caltrain 6	Dumbarton Wye to Palo Alto	5.23	3.25	\$49,783,239	\$80,118,357	\$260,316,558
Caltrain 7	Palo Alto to Santa Clara	22.55	14.01	\$26,212,143	\$42,184,355	\$591,083,820
Caltrain 8	Santa Clara to Diridon Station	5.00	3.11	\$92,535,828	\$148,921,979	\$462,679,139
<b>Niles/I-880 (West Oakland to Niles Junction)</b>						
	<b>Subtotal</b>	<b>44.26</b>	<b>27.50</b>	<b>\$36,053,254</b>	<b>\$58,022,088</b>	<b>\$1,595,717,028</b>
Niles/I-880 1A	West Oakland to Jack London Square	9.04	5.62	\$57,292,648	\$92,203,579	\$517,810,948
Niles/I-880 2	Jack London Square to Oakland Coliseum	3.75	2.33	\$58,026,798	\$93,385,080	\$217,600,493
Niles/I-880 3A	Oakland Coliseum to Union City (BART)	8.02	4.98	\$100,347,026	\$161,492,885	\$804,983,844
Niles/I-880 4A	Union City (BART) to Niles Junction	23.45	14.57	\$2,359,136	\$3,796,662	\$55,321,742
<b>Niles/I-880 (Niles Junction to San Jose via I-880)</b>						
	<b>Subtotal</b>	<b>26.10</b>	<b>16.22</b>	<b>\$48,553,043</b>	<b>\$78,138,548</b>	<b>\$1,267,234,412</b>
Niles/I-880 5A	Niles Junction to Niles Wye (S)	3.65	2.27	\$45,726,749	\$73,590,069	\$166,902,634
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	\$16,691,618	\$26,862,555	\$141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	\$212,457,836	\$341,917,743	\$499,275,914
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon	11.65	7.24	\$39,485,982	\$63,546,529	\$460,011,694
<b>East Bay Connection (Dumbarton/Niles XN &amp;)</b>						
	<b>Subtotal</b>	<b>13.13</b>	<b>8.16</b>	<b>\$55,263,716</b>	<b>\$88,938,329</b>	<b>\$725,723,114</b>
Dumbarton/Niles XN	Niles to Union City - Niles Wye (E) to Niles Wye (N)	4.25	2.64	\$35,018,018	\$56,356,037	\$148,966,648
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)	8.88	5.52	\$64,964,684	\$104,550,525	\$576,756,468
<b>UPRR (Niles to Altamont)</b>						
	<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>	<b>\$1,680,501,168</b>
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	\$52,413,607	\$84,351,524	\$626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	\$134,433,359	\$216,349,520	\$147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	\$26,410,969	\$42,504,335	\$68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	\$7,127,268	\$11,470,225	\$47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	\$22,896,022	\$36,847,576	\$74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	\$18,326,922	\$29,494,322	\$54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	\$53,967,010	\$86,851,484	\$608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	\$15,283,791	\$24,596,878	\$53,508,554
<b>Tracy Downtown (UPRR Connection)</b>						
	<b>Subtotal</b>	<b>57.42</b>	<b>35.68</b>	<b>\$28,122,096</b>	<b>\$45,258,126</b>	<b>\$1,614,883,212</b>
UPRR-10	County Line to Tracy Downtown	12.35	7.67	\$24,741,185	\$39,817,078	\$305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	\$15,859,194	\$25,522,899	\$117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	\$15,933,589	\$25,642,626	\$124,281,993
UPRR-13	I-205 to Lathrop - Northern	13.14	8.16	\$18,113,361	\$29,150,629	\$238,009,562
MC-1	Southwestern Manteca	1.46	0.91	\$27,687,372	\$44,558,506	\$40,340,501
MC-2	Southeastern Manteca	1.83	1.14	\$25,102,875	\$40,399,161	\$45,963,364
MC-3	Eastern Manteca UPRR South to BNSF	9.17	5.70	\$74,962,364	\$120,640,230	\$687,254,951
MC-4	Manteca to Escaton Wye	4.28	2.66	\$13,118,552	\$21,112,263	\$56,121,166
<b>UPRR (Central Valley)</b>						
	<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>	<b>\$2,545,524,294</b>
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	\$13,627,270	\$21,930,965	\$109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	\$21,359,159	\$34,374,234	\$185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	\$7,761,402	\$12,490,765	\$25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	\$15,559,246	\$25,040,179	\$287,846,051
UPRR N/S-5a *	UPRR Modesto South - Western Option	4.20	2.61	\$84,115,056	\$135,370,061	\$353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	\$21,150,677	\$34,038,714	\$442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	\$16,572,019	\$26,670,079	\$551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<b>Pacheco (San Jose to Western Valley)</b>						
	<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>	<b>\$3,589,067,255</b>
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	\$20,366,713	\$32,777,047	\$661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	\$23,730,117	\$38,189,921	\$379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	\$57,896,982	\$93,176,161	\$2,547,467,226
<b>Henry Miller (UPRR Connection)</b>						
	<b>Subtotal</b>	<b>81.69</b>	<b>50.76</b>	<b>\$16,660,011</b>	<b>\$26,811,688</b>	<b>\$1,360,872,958</b>
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	\$27,554,846	\$44,345,226	\$425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	\$10,870,134	\$17,493,785	\$630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	\$11,200,428	\$18,025,342	\$91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	\$11,845,555	\$19,063,573	\$133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	\$9,962,265	\$16,032,711	\$79,200,005
<b>STATION OPTIONS</b>						
	S2	Transbay Transit Center				\$786,262,418
	S1	4th and King (Caltrain)				\$791,939,278
	S6	Millbrae/SFO				\$29,076,600
	S7	Redwood City (Caltrain)				\$67,516,558
	S8	Palo Alto (Caltrain)				\$67,516,558
	S3	West Oakland/7th Street				\$611,197,055
	S9	Coliseum/Airport				\$61,735,853
	S10	Union City (BART)				\$69,853,070
	S12	Fremont (Warm Springs)				\$156,875,180
	S32	Pleasanton (I-680/Bernal Rd)				\$58,118,585
	S34	Livermore (Downtown) (At Grade)				\$58,758,963
	S35	Livermore (Downtown) (Aerial)				\$300,146,665
	S37	Livermore (Greenville Road/UPRR)				\$58,118,585
	S38	Tracy (Downtown)				\$300,146,665
	S25	Modesto (Downtown)				\$71,428,053
	S27	Merced (Downtown)				\$71,428,053
	S5	San Jose (Diridon)				\$185,051,790
	S24	Morgan Hill (Caltrain)				\$284,985,295
	S23	Gilroy (Caltrain)				\$148,256,045

# **High-Speed Train Network Alternatives Cost Breakdown**

Network Alternatives and Segments		Segment km	Length miles	Avg Cost \$/km	Avg Cost \$/mile	Segment/Station Costs
<b>PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE)</b>						
<b>AP5 - San Jose Terminus</b>		<b>460.34</b>	<b>286.04</b>	<b>\$27,084,369</b>	<b>\$43,588,067</b>	<b>\$12,467,937,131</b>
<i>Niles/I-880 (Niles Junction to San Jose via I-880)</i>						
	<b>Subtotal</b>	<b>22.45</b>	<b>13.95</b>	<b>\$49,012,551</b>	<b>\$78,878,055</b>	<b>\$1,100,331,777</b>
Niles/I-880 5B	Niles Wye (S) to Warm Springs	8.45	5.25	\$16,691,618	\$26,862,555	\$141,044,170
Niles/I-880 6	Warm Springs to Trimble Rd	2.35	1.46	\$212,457,836	\$341,917,743	\$499,275,914
Niles/I-880 7A	I-880 - Trimble Rd. to Diridon	11.65	7.24	\$39,485,982	\$63,546,529	\$460,011,694
<i>East Bay Connection (Dumbarton/Niles XS)</i>						
	<b>Subtotal</b>	<b>8.88</b>	<b>5.52</b>	<b>\$64,964,684</b>	<b>\$104,550,525</b>	<b>\$576,756,466</b>
Dumbarton/Niles XS	Niles to Fremont - Niles Wye (E) to Niles Wye (S)	8.88	5.52	\$64,964,684	\$104,550,525	\$576,756,466
<i>UPRR (Niles to Altamont)</i>						
	<b>Subtotal</b>	<b>43.25</b>	<b>26.87</b>	<b>\$38,855,518</b>	<b>\$62,531,895</b>	<b>\$1,680,501,168</b>
UPRR-2A/2B	Niles Canyon to Sunol	11.95	7.43	\$52,413,607	\$84,351,524	\$626,342,602
UPRR-3	Sunol to Pleasanton	1.10	0.68	\$134,433,359	\$216,349,520	\$147,876,695
UPRR-4	Pleasanton to El Charo	2.59	1.61	\$26,410,969	\$42,504,335	\$68,510,055
UPRR-5	El Charo to Livermore	6.61	4.10	\$7,127,268	\$11,470,225	\$47,082,729
UPRR-6	Livermore to Patterson Pass cut off	3.25	2.02	\$22,896,022	\$36,847,576	\$74,412,071
UPRR-7	Patterson Pass cut off to Greenville	2.98	1.85	\$18,326,922	\$29,494,322	\$54,614,227
UPRR-8	Greenville to Altamont Pass	11.27	7.00	\$53,967,010	\$86,851,484	\$608,154,234
UPRR-9	Altamont Pass to County Line	3.50	2.18	\$15,283,791	\$24,596,878	\$53,508,554
<i>Tracy UP Connection (Tracy Downtown)</i>						
	<b>Subtotal</b>	<b>57.42</b>	<b>35.68</b>	<b>\$28,122,096</b>	<b>\$45,258,126</b>	<b>\$1,614,883,212</b>
UPRR-10	County Line to Tracy Downtown	12.35	7.67	\$24,741,185	\$39,817,078	\$305,553,641
UPRR-11	Tracy Downtown to I-205	7.40	4.60	\$15,859,194	\$25,522,899	\$117,358,035
UPRR-12	I-205 to S. UPRR	7.80	4.85	\$15,933,589	\$25,642,626	\$124,281,993
UPRR-13	I-205 to Lathrop - Northern	13.14	8.16	\$18,113,361	\$29,150,629	\$238,009,562
MC-1	Southwestern Manteca	1.46	0.91	\$27,687,372	\$44,558,506	\$40,340,501
MC-2	Southeastern Manteca	1.83	1.14	\$25,102,875	\$40,399,161	\$45,963,364
MC-3	Eastern Manteca UPRR South to BNSF	9.17	5.70	\$74,962,364	\$120,640,230	\$687,254,951
MC-4	Manteca to Escalon Wye	4.28	2.66	\$13,118,552	\$21,112,263	\$56,121,166
<i>UPRR (Central Valley)</i>						
	<b>Subtotal</b>	<b>134.95</b>	<b>83.85</b>	<b>\$18,862,722</b>	<b>\$30,356,608</b>	<b>\$2,545,524,294</b>
UPRR N/S-1	French Camp to Lathrop	8.00	4.97	\$13,627,270	\$21,930,965	\$109,018,159
UPRR N/S-2	Lathrop through Manteca	8.70	5.41	\$21,359,159	\$34,374,234	\$185,824,683
UPRR N/S-3	Manteca South to BNSF/UPRR	3.30	2.05	\$7,761,402	\$12,490,765	\$25,612,626
UPRR N/S-4	BNSF/UPRR South to Modesto	18.50	11.50	\$15,559,246	\$25,040,179	\$287,846,051
UPRR N/S-5a *	UPRR Modesto South - Western Option	4.20	2.61	\$84,115,056	\$135,370,061	\$353,283,237
UPRR N/S-6	South Modesto to BNSF Connection	20.90	12.99	\$21,150,677	\$34,038,714	\$442,049,140
UPRR N/S-7	BNSF Connection South to Merced	33.25	20.66	\$16,572,019	\$26,670,079	\$551,019,624
UPRR N/S-8	Merced South to BNSF Connection	4.75	2.95	\$32,162,740	\$51,760,913	\$152,773,015
UPRR N/S-9	BNSF Connection South to Henry Miller Wye	17.45	10.84	\$8,686,037	\$13,978,822	\$151,571,352
UPRR N/S-10	BNSF Henry Miller Wye	15.90	9.88	\$18,020,529	\$29,001,230	\$286,526,405
<i>Pacheco (San Jose to Western Valley)</i>						
	<b>Subtotal</b>	<b>92.50</b>	<b>57.48</b>	<b>\$38,800,727</b>	<b>\$62,443,717</b>	<b>\$3,589,067,255</b>
Pacheco 1	Diridon to Morgan Hill	32.50	20.19	\$20,366,713	\$32,777,047	\$661,918,165
Pacheco 2	Morgan Hill to Gilroy	16.00	9.94	\$23,730,117	\$38,189,921	\$379,681,864
Pacheco 3	Gilroy to San Luis Reservoir	44.00	27.34	\$57,896,982	\$93,176,161	\$2,547,467,226
<i>Henry Miller (UPRR Connection)</i>						
	<b>Subtotal</b>	<b>100.89</b>	<b>62.69</b>	<b>\$13,489,349</b>	<b>\$21,709,003</b>	<b>\$1,360,872,958</b>
Pacheco 4	San Luis Reservoir to Valley Floor	15.45	9.60	\$27,554,846	\$44,345,226	\$425,722,369
HM-1	Western Valley to Henry Miller UP Wye	58.05	36.07	\$10,870,134	\$17,493,785	\$630,967,784
HM-2	Henry Miller UP North Wye to UP South Wye	8.19	5.09	\$11,200,428	\$18,025,342	\$91,720,307
HM/UP-XN	Henry Miller Wye North to UPRR	11.25	6.99	\$11,845,555	\$19,063,573	\$133,262,493
HM/UP-XS	Henry Miller Wye South to UPRR	7.95	4.94	\$9,962,265	\$16,032,711	\$79,200,005
<b>STATION OPTIONS</b>						
S12	Fremont (Warm Springs)					\$156,875,180
S32	Pleasanton (I-680/Bernal Rd)					\$58,118,585
S34	Livermore (Downtown) (At Grade)					\$58,758,963
S35	Livermore (Downtown) (Aerial)					\$300,146,665
S37	Livermore (Greenville Road/UPRR)					\$58,118,585
S38	Tracy (Downtown)					\$300,146,665
S25	Modesto (Downtown)					\$71,428,053
S27	Merced (Downtown)					\$71,428,053
S5	San Jose (Diridon)					\$185,051,790
S24	Morgan Hill (Caltrain)					\$284,985,295
S23	Gilroy (Caltrain)					\$148,256,045
<b>* Option 5B more expensive by \$26,806,470.</b>						